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CIO

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A Special Report on Project Management

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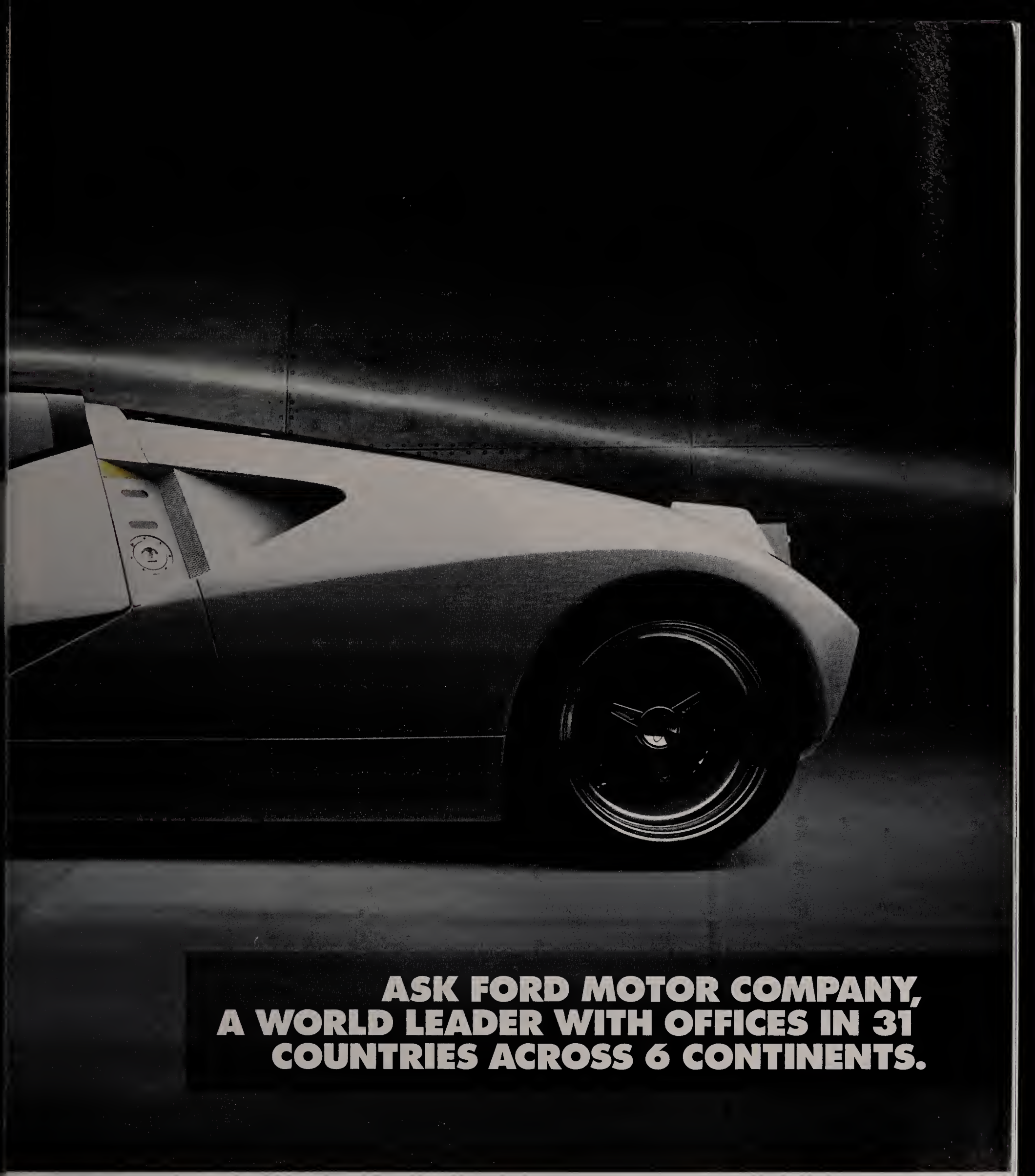

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Are You Running Out of Time?

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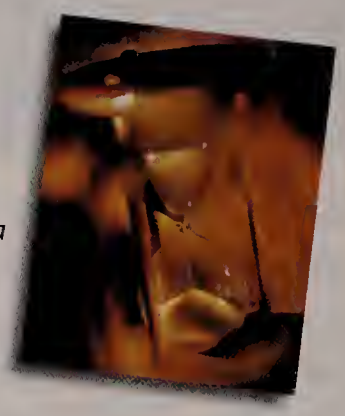

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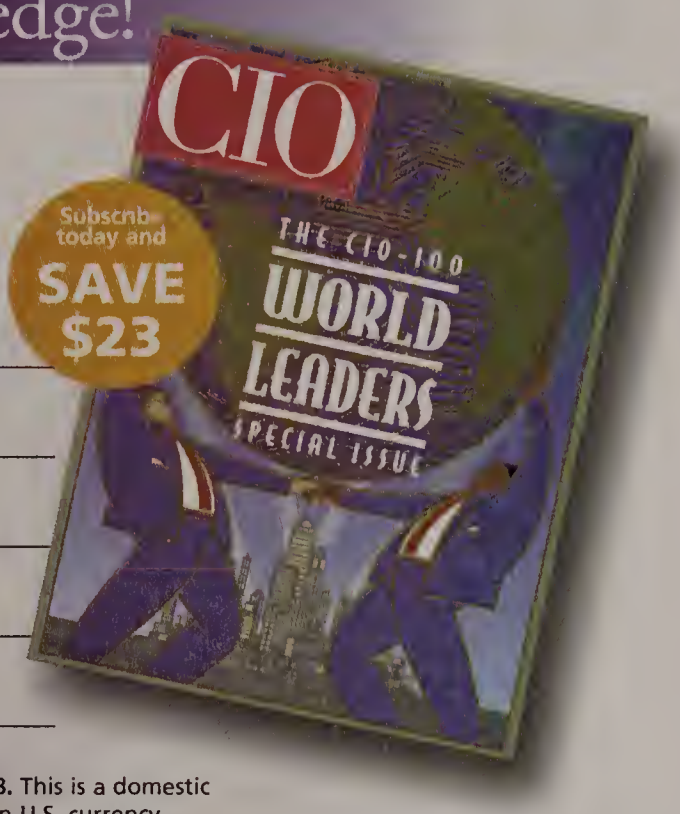

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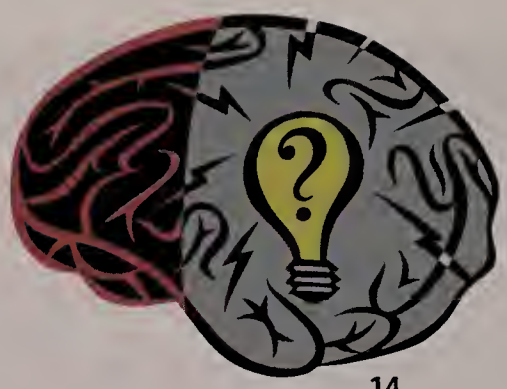

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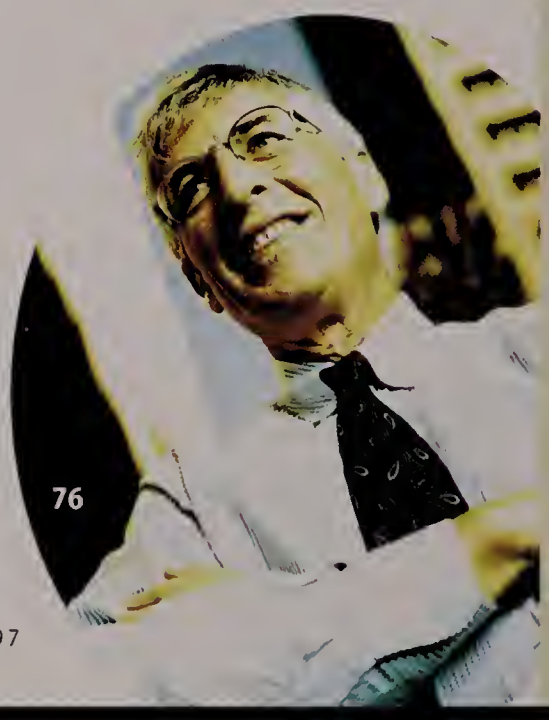

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MEASURING I.T. COSTS Desktop costs keep rising, but a spending model called TCO can help control them.

FOCUS ON THE WORKPLACE Ways to build an innovative environment and lure creative people into joining it.

THE GLOBAL ENTERPRISE Gillette is regrooming processes and systems to present one face to its global retail customers.

POLITICAL SCENE Proposed revisions to state laws could tip the scales against software buyers.

REALITY BYTES Cutting through the techno-buzz to find what's real.

INTELLECTUAL CAPITALISM Before investing in knowledge management, make sure your approach is tailored to the kind of knowledge your company needs.

HANDSHAKE How to apply call center technology to serve your customers better.

LEARNING CURVE What is bandwidth?

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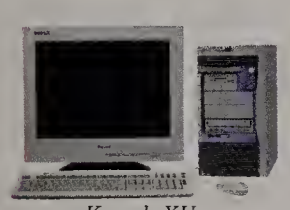

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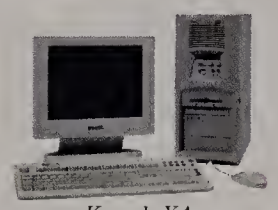

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In Box

LETTER FROM THE EDITOR, READER FEEDBACK AND HOW TO REACH US

Ten years ago, most people entering information systems management were charged with overseeing large shops of software developers. There weren't a lot of relevant packaged applications, and the only platform was the mainframe. Has any job changed more dramatically in the past decade?

Besides the time they spend on strategy and planning, CIOs spend a lot of their time scoping out new technologies and getting to know the vendors that make them; working with consultants, integrators and outsourcers; and managing large-scale projects. The need for project management skills is so great that at one recent PM conference (not IS-specific), a majority of the attendees were from IS.

A good project manager must be able to fill a variety of roles, including business person, leader, motivational speaker, politician and psychologist. Regrettably, many IS shops noticeably lack these skills. With the year 2000 looming, this is something to be concerned about. That is why we published this special report on project management.

I'd like to thank editors Elaine Cummings, Sara Shay and Christopher Koch, who produced this issue under extremely challenging conditions. When most of the staff was preoccupied with launching our new sections (you received the first release of *CIO Enterprise* with this issue), these three kept their focus on finding and presenting the best practices in project management—and the pitfalls that can croak a project.

In case you missed my letter last issue, I'll take this opportunity to explain a little about the new sections. With the issue of *CIO* that goes out the first of the month, you'll receive *CIO Web Business*, which will help you and your business peers use the Web to improve productivity, increase profits and transform your business. With your mid-month issue, you'll get *CIO Enterprise*, which is pitched toward helping senior decision makers from all functions better understand how to derive value from their IT investments.

Please pass along our sections to other executives in your organizations. And let us know what you think of the sections by dropping an e-mail to *letters@cio.com*.

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MIGRATION HEADACHES

You are correct that there is a serious year 2000 problem [Editor's Letter, July 1997]. However, migration is a two-edged sword—if CIOs pick a technology with known downsides, they're behind the times. If they pick a new technology, they don't know if it will really work. Actually, they can't even easily pick a new technology company because those trendy companies really don't care a fig about the year 2000, migration and all that, anyway. The Sun Microsystems of the world would rather a CIO just dump everything and start anew with their platform.

Year 2000 is not unsolvable—but it's not solved by buying some new hardware platforms or going to Unix or NT. It's solved by developing a platformless approach that works flexibly with a CIO's future hardware/infrastructure plans.

Lynne Greer Jolitz
Director, Internet Business
InterProphet
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ljolitz@cardio.ucsf.edu

ON THE CIO-100

Absolutely well written and relevant August 1997 *CIO*. Not only did I find it interesting reading, I also came away with some ideas to apply to my company. With 1,850-plus IT employees in over 90 countries around the world, I can use all the good ideas available.

Mike Ruffolo
Vice President and CIO
NCR Corp.
Dayton, Ohio
ruffom@UH2309P02.daytonoh.ncr.com

I was disappointed that "The Nature of Excellence" [August 1997] did not deal with the issues relating to application architecture. While it was stated throughout that applications need to align with the business, there was no mention of how to maintain that alignment as the business changes. Most of the businesses I have worked for have struggled with legacy applications that either were not designed to be flexible or had lost their flexibility through years of minor enhancements—

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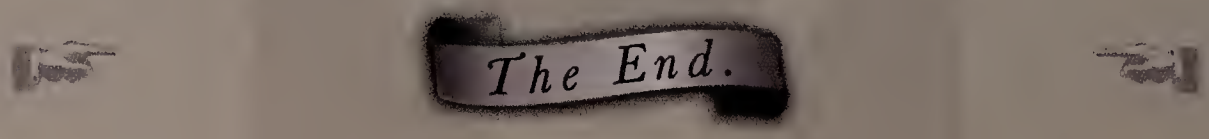

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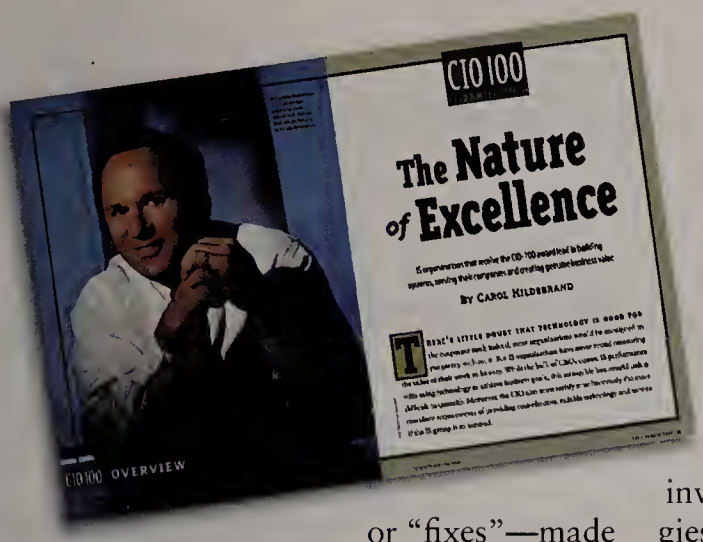

or "fixes"—made without regard for the long term. Duplication of data and redundant processes are not often designed into systems. Yet these are the issues that make it difficult to manage legacy systems. The lack of an application-level architecture has made it impossible to manage change to the applications.

Debra Blatnik
Technical Consultant, Data Architecture
Certified Vacations
Fort Lauderdale, Fla.
dblatnik@certifiedvacations.com

I want to thank you for this exceptional article ["The Nature of Excellence"]. As the CIO of a mid-size insurance company in Maine, it can be very difficult to exchange strategic issues and ideas with other CIOs. Your reporting has been invaluable to me in identifying the issues and obstacles involved in integrating new technologies into existing infrastructures. Very often, *CIO* serves as the mentor I couldn't find.

Gary Baxter
CIO
Maine Employers' Mutual Insurance Co.
Portland, Maine
gbaxter@memic.com

PHILOSOPHY 101

You must surely have been sleeping in your philosophy class the week they discussed theories of knowledge. I was shocked to read the first statement in "New Business" [Trendlines, Page 26, August 1997]. It reads, "Universities have been dedicated to learning since the Middle Ages, but until now no academic position dedicated to the study of knowledge has existed." What? As a philosopher by training and a member of IS by profession, I'd like to let you in on a secret: We've been working on the issue of knowledge for about 2,500 years.

In this country alone, there are probably several hundred people who have exactly such academic positions. There's even a fancy name for them—epistemologists. You'll find them toiling in virtually every philosophy department. Look at the books in the philosophy library as well—you will find yards and yards of titles containing the words "knowledge" or "knowing." Nor is our work unrelated to the interests of IS and business.

Christopher Wilson
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Publisher's Note

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In an effort to provide IT and business executives with easy-to-access intellectual capital about IT, CIO Communications Inc. and ICEX Inc. are introducing a CD-ROM product called "CIO ConsultWare: Managing IT Standards."

To ensure optimal utilization and growth of their IT systems, companies typically turn to consultants, technology vendors, other specialists and industry newspapers and magazines for counsel—all time-consuming and costly measures. Now with the "CIO ConsultWare" interactive CD-ROM, companies can quickly and conveniently navigate through current standard policies, study management practices in use at a diverse selection of companies and identify methods for assessing their existing IT environments.

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Kathryn L. Swanborg

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Trendlines

NEWS, INSIGHT, HUMOR, REVIEWS

Edited by Sara Shay

Will You Lose Your Shirt in a Suit?

YEAR 2000 Forget about the gigantic tobacco settlements of last summer. An entirely new area of litigation is looming on the horizon, and some say it will eclipse all others in scope.

When the post-millennial dust settles, companies that failed to deal with the year 2000 problem properly may have a slew of lawsuits on their hands. And expensive suits at that: Giga Information Group Inc., a Cambridge, Mass.-based consultancy, predicts that worldwide year 2000-related litigation expenses could exceed $1 trillion.

"Never has there been a technical problem that had the potential to trigger so many lawsuits and create so much business crisis as the year 2000 problem," says project management expert Capers Jones, president of Software Productivity Research in Burlington, Mass. "It is the largest pure software project in the history of the world."

To stave off such legal dilemmas, IS departments need to sweat the details of year 2000 project management. If they don't, CIOs themselves may be held liable for failed projects, says Warren S. Reid, a litigation strategist for Encino, Calif.-based WSR Consulting Group, which evaluates large system failures. Unless CIOs are officers of the company, he explains, they are not necessarily covered by the insurance that protects directors and officers from personal liability when a company is sued.

"This is going to be a litigation catastrophe," says attorney Vito Peraino, a partner with San Francisco-based Hancock, Rothert & Bunschoft LLP who has testified before Congress on the issue. Likely litigants will include people who have been injured physically as a result of a computer snafu, purchasers of faulty software and hardware, and shareholders of

Zen and Now

ONLINE BUDDHA If the rigors of project management have begun to disturb your inner peace, perhaps it's time to embark on a spiritual journey—online. Here to help you is the Jomoh Temple, the very modern Web site of the 400-year-old Buddhist Daioh Temple in Kyoto, Japan. In addition to guiding you toward answers to the "profound and perplexing questions in your life today," the temple's forward-thinking Head Priest Shokyu Ishiko is offering his first annual Information Service on Oct. 24. Inspiration for the service comes from Ishiko's concern that information recorded electronically rather than with pen and ink is too often "discarded or erased without even a second thought." The Buddhist service, which the ambitious can also catch at the Kyoto location, will heighten awareness of the "information void" such thoughtless deletions encourage. Why the 24th? According to the Web site, "As the principal unit of the computer is the kilobyte (1,024 bytes), it only seemed logical to hold the service on the 24th day of the 10th month." We're sure the bodhisattvas would approve.

Visit the site at *www.thezen.or.jp/*. ■

ILLUSTRATION BY STEVE MEEK. PHOTO BY MASAO OTA / PHOTONICA

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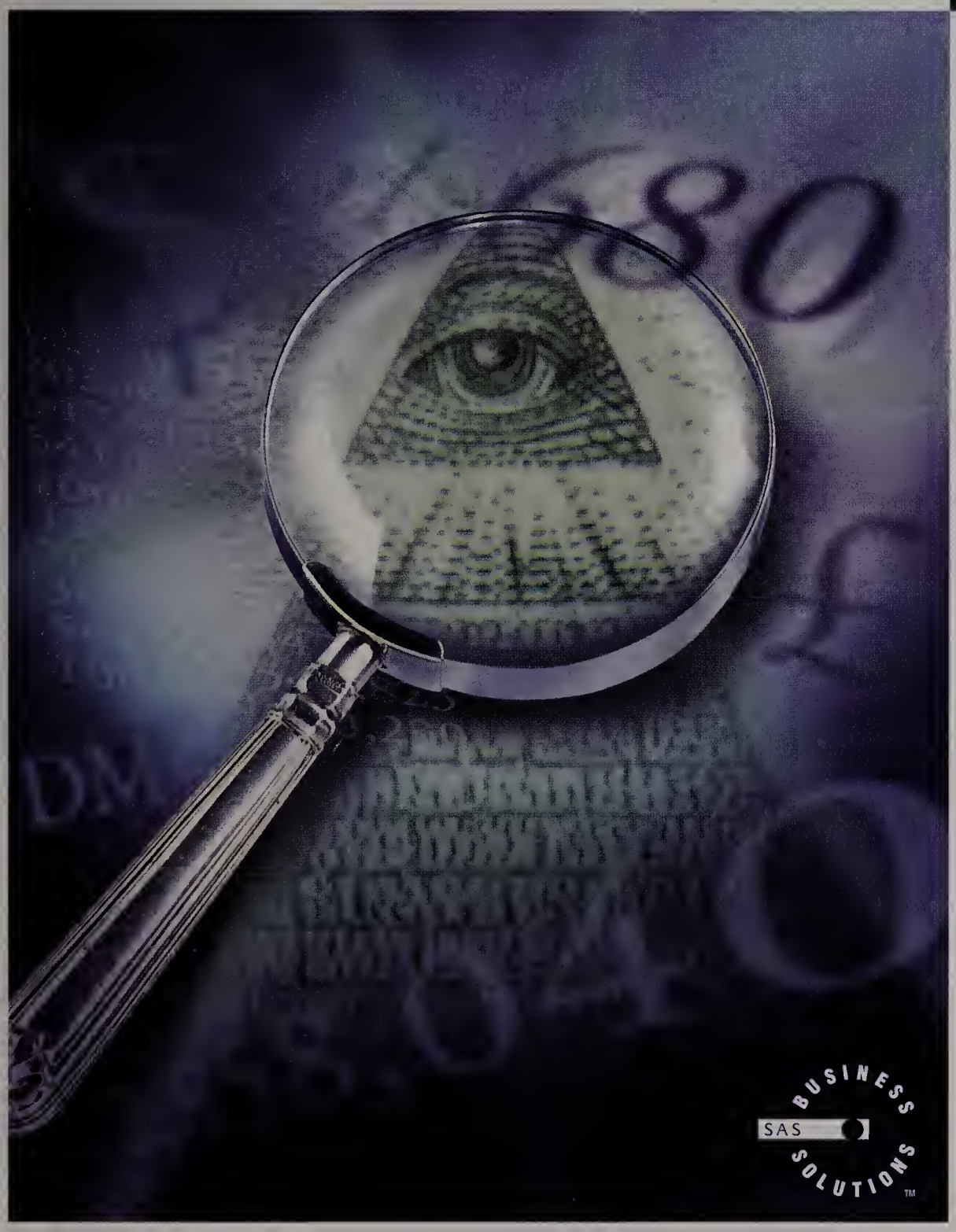

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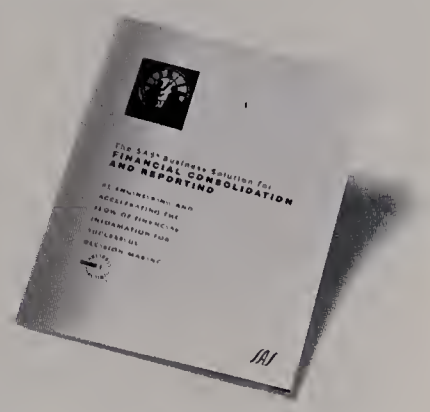

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Trendlines

companies that experience software failure and want the companies to be liable for their financial losses, according to Peraino. In addition, owners of legacy systems that didn't come equipped to deal with the year 2000 glitch could sue the suppliers. Can't you just smell the potential for class-action suits?

If you think you have a few years yet before you need to add Johnny Cochran to your Rolodex, think again. One of the first cases involving the year 2000 problem was filed in August by Produce Palace International. When the Warren, Mich.-based produce store's new systems freaked out while trying to process credit cards with post-1999 expiration dates, it filed suit against suppliers Tec-America Corp., an Atlanta-based credit-card processing vendor, and All American Cash Register Inc., a provider of cash registers and computer systems in Inkster, Mich.

And three years shy of the turn of the century, year 2000 litigation is already a full-time job for Reid and Peraino, they say. *–Alex Frankel*

"We thought SAP's R/3 software was going to be this 800-pound gorilla and that we'd go broke feeding it over the next few years."

–Eleanor O'Neill, IT and Facilities Manager, Europe, at Visio Corp., on her doubts about implementing SAP at her relatively small company.
(See "The Big Uneasy," Page 40, for more about Visio.)

Project Management Resources

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New York, NY 10013
Phone: 800 4-PROJECT
Fax: 212 219-3597
Web site: *www.abtcorp.com*

ABT is a worldwide provider of management software for IT product environments.

Center for Project Management
1 Annabel Lane, Suite 108
San Ramon, CA 94583
Phone: 510 275-8000
E-mail: *project@center4pm.com*
Web site: *www.center4pm.com*

The center is dedicated to the development of innovative project management solutions and has earned a reputation for excellence and leadership in the field.

Project Management Institute
130 South State Road
Upper Darby, PA 19082
Phone: 610 734-3330
Fax: 610 734-3266
E-mail: *pmieo@pmi.org*
Web site: *www.pmi.org*

PMI offers professional development opportunities through local chapters, interest groups, magazines and seminars as well as a project management professional certification program.

ProjectWorld Inc.
55 William Street, Suite 210
Wellesley, MA 02181
Phone: 888 943-4444
Fax: 617 431-0107
Web site: *www.projectworld.com*

ProjectWorld offers a series of conferences and trade shows for high-tech project management professionals.

READING LIST:

The Deadline
By Tom DeMarco
Doubleday, 1977

Check your public library for a copy of this novel about project management.

Patterns of Software Systems Failure and Success
By Capers Jones
International Thomson Computer Press, 1995

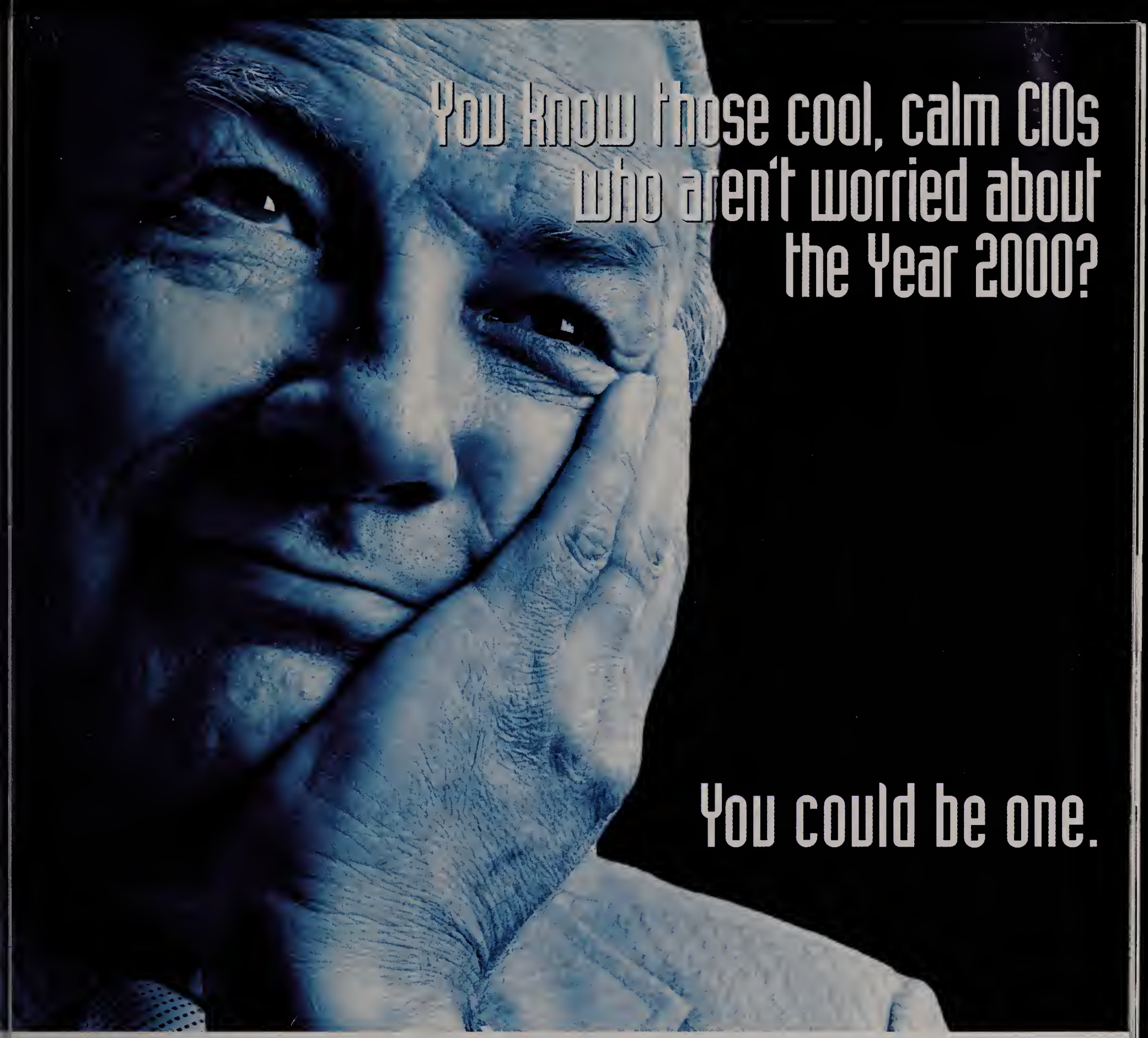
This book includes a statistical analysis of software projects that were total failures as well as projects that set records for quality and productivity.

Year 2000 Problem: Strategies and Solutions from the Fortune 100
By Leon Kappelman
International Thomson Computer Press, 1997

Key managers in Fortune 100 companies and government reveal their solutions to the year 2000 problem.

What Made Gertie Gallop: Lessons from Project Failures
By O.P. Kharbanda and Jeffrey K. Pinto
Van Nostrand Reinhold, 1996

The authors look at project management catastrophes and show what went wrong.



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Trendlines

Supply the Demand

Project management expertise is among the hottest IT specialties across the country, according to a recent survey of 1,400 CIOs conducted by Menlo Park, Calif.-based RHI Consulting, a division of Robert Half International Inc. and a provider of IT professionals specializing in the client/server and network engineering arenas. Respondents ranked the areas they say are experiencing the most growth. Their top six choices are the following:

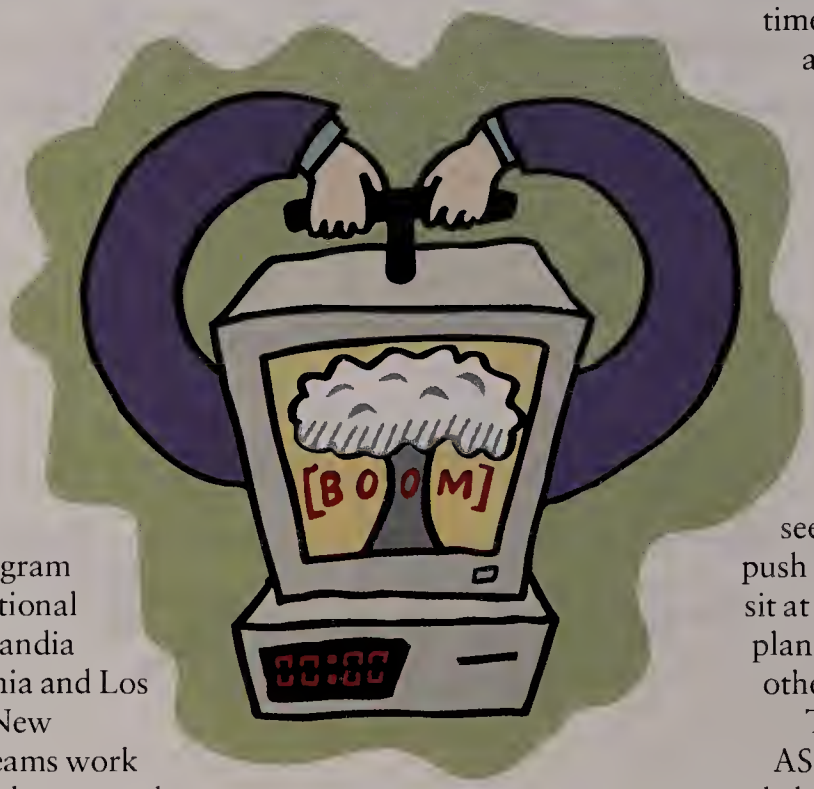
1. Networking
2. Internet/intranet development
3. Programming
4. Help desk/end-user support
5. Project management
6. Systems analysis

SOURCE: RHI CONSULTING

Bombs Away

WEAPONS TESTING Used to be that defense specialists who needed to test nuclear weapons just snuck into the desert, huddled behind a concrete bunker and hit a button.

But two years ago, President Clinton signed the Comprehensive Test Ban Treaty, which forbids traditional nuclear weapons tests. Since then, the specialists have had to resort to computer simulation, which, for better or worse, just doesn't have the same effect.



Enter the Accelerated Strategic Computing Initiative (ASCI), a 10-year, $1 billion Department of Energy project to develop high-performance supercomputers that will make virtual testing of nuclear weapons possible. The ASCI developers must bridge some big gaps in computer evolution. But equally daunting are ASCI's project management demands. ASCI is overseen by DOE officials, who empower program managers at the agency's three national labs—Lawrence Livermore and Sandia National Laboratories in California and Los Alamos National Laboratory in New Mexico. The managers' project teams work on various aspects of ASCI. The labs must collaborate with each other, which is a first for them, as well as with such high-tech partners as IBM Corp. and Silicon Graphics Inc.

"It's a major cultural change in our decision making," says Donald McCoy, ASCI program manager at the Los Alamos lab. "The three labs traditionally have been competitive. We now have to overcome the natural competitive parts of our culture. Also, what we're trying to do is highly aggressive. The cultural, technology and management issues are big."

Communication is the key to solving these cultural and geographic problems, McCoy says. He and his colleagues at Lawrence Livermore and Sandia bring their project teams together for face-to-face strategy meetings several times a year, and ASCI developers are in touch constantly via phone, e-mail and a classified intranet over which documents are drafted and shared. "It's a consensus-based approach to trying to come up with a technological solution," says John Morrison, a project director at Los Alamos. "[ASCI] requires senior managers to watch things more carefully—see that we are making progress, push for resolutions. You can't just sit at your desk and lay out a project plan; you have to work with the other labs."

Two years into its development, ASCI is on time and within budget, and already the labs are reaping the benefits of the project, managers say. "Morale has increased significantly," says David Nowak, ASCI program manager at Lawrence Livermore. "People really feel they're on the forefront of high-end computing." And they can work in the relative comfort of their labs rather than in those less-than-commodious concrete bunkers of yore.

–Tom Field

ILLUSTRATION BY JANE WINSOR

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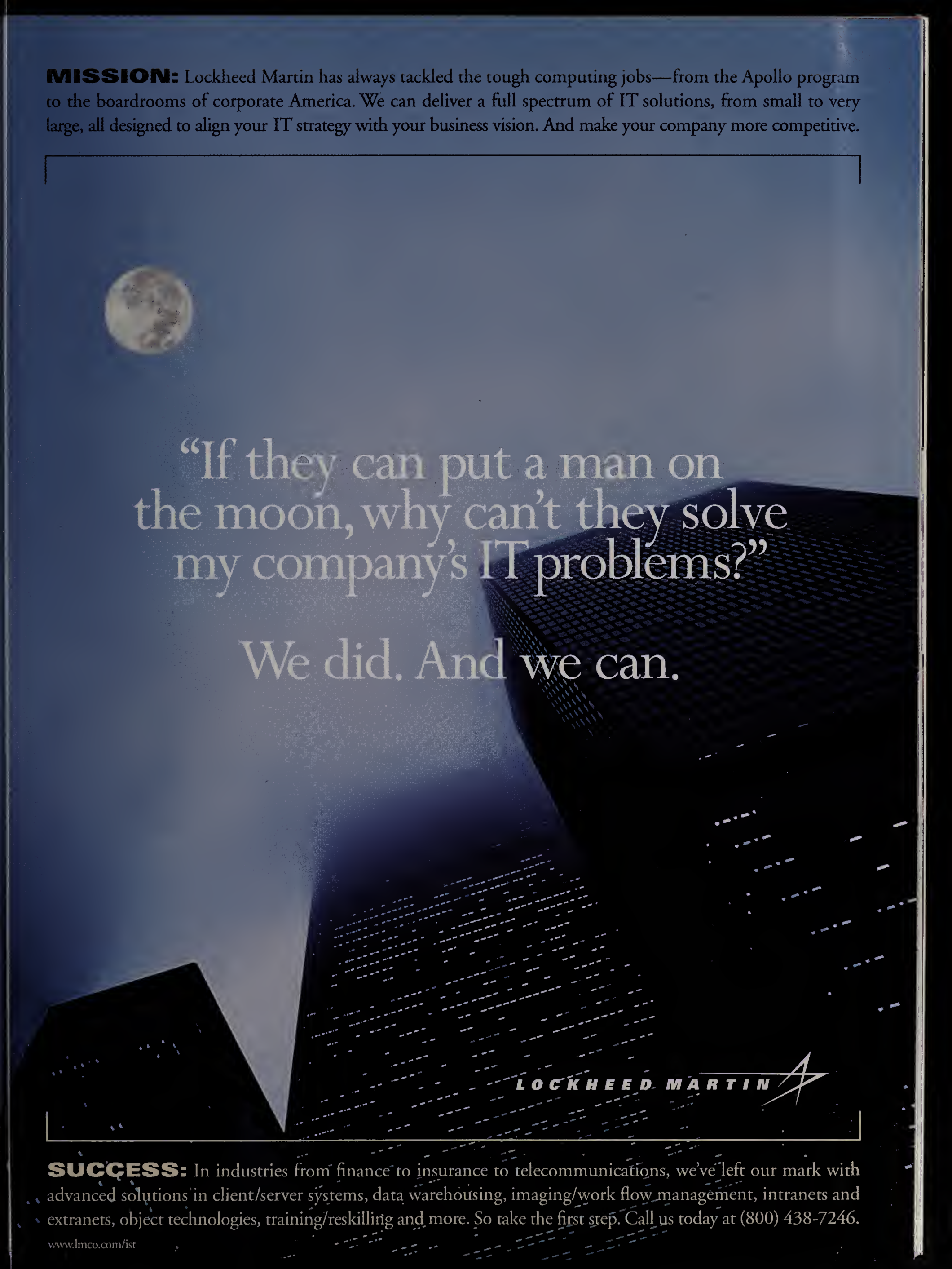

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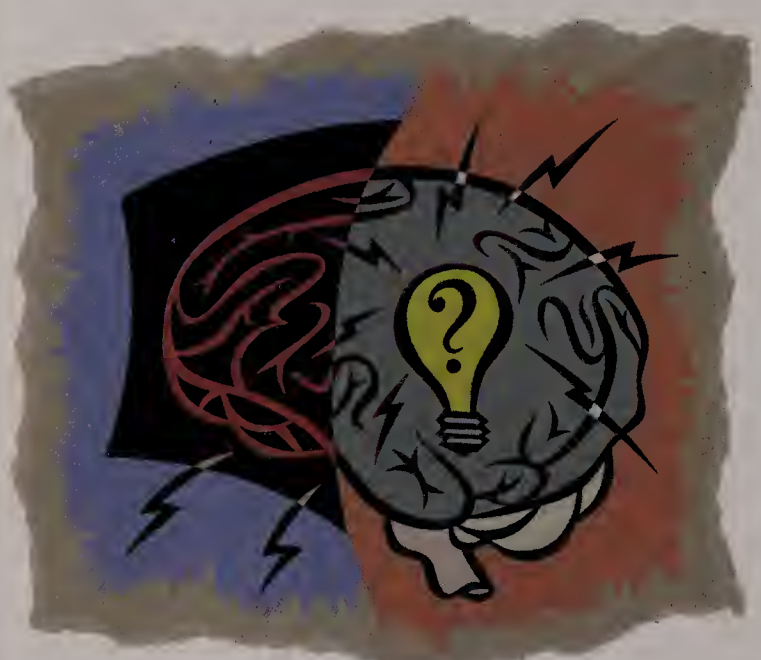
Trendlines

Chance of Heavy Brainstorms

CREATIVITY TOOLS Does your current project need a jump-start, a little inspiration, maybe a big whack upside the head? Help is available in the form of commercial packages touted by their creators as "creativity" or "problem solving" software. It's a diverse lot, ranging in focus from formulaic programs that help make project outlines to freewheeling brainstorming aids. The more regimented offerings include Project KickStart from Experience in Software in Berkeley, Calif., and MindLink Problem Solver from MindLink Software Corp. in Wellesley, Mass., which guide users through a series of questions to produce a thorough solution and plan of attack. Project KickStart, for example, helps users define stages and deadlines for IT projects, says Lynn McIntier, data processing manager at Irving Tanning Co. in Hartland, Maine. "I tend to juggle a lot of projects, and it gets a little mind-boggling at times," she says. "[KickStart] helps clear it up, so I feel comfortable that I haven't missed a step."



Such structured products require a time investment before you start seeing payback. At the opposite end of the spectrum are packages like The Creative Whack Pack. The Whack Pack, from Creative Think of Menlo Park, Calif., fires off random questions, anecdotes and associations in hopes of sparking a "eureka" moment for the user. It takes only about five minutes to get up and running on the Whack Pack, which is produced by creativity consultant Roger von Oech.

Programs like these are so different in approach that the most useful creativity software is doubtless a matter of personal preference. But for our money—OK, we got the software free—it's hard to top IdeaFisher from IdeaFisher Systems in Irvine, Calif. IdeaFisher comes with an extensive bank of structured questions that help users think about projects systematically, but more striking is the feature that allows them to explore seemingly endless branches of interconnected ideas, metaphors, slogans and thoughts. Typing the word "chief," for example, yields links to categories such as "royalty/aristocracy," which when clicked on calls up links to things like "Let them eat cake" and *The African Queen*. IdeaFisher is the brainchild of Marsh Fisher, co-founder of real estate company Century 21. With IdeaFisher, for which Fisher hired a team heavily weighted with library science majors to categorize loads of information, you can access thousands of associations in mere moments. *–Derek Slater*

ILLUSTRATION BY STEVE MEEK

The Other Management Degree

EDUCATION Any aspiring project managers out there looking for a place to learn the basics? George Washington University, in Washington, D.C., is one of a handful of schools in the world offering a master of science degree in program management.

Academic luster gives added credibility to the discipline of project management, which until recently was taught only in a certificate-granting process known as Project Management Professional (PMP), developed by the nonprofit Project Management Institute.

"Project management is often referred to as the 'accidental profession' because most people engaged in project management didn't set out to do that but rather were assigned to a project by senior management," says a GW spokesperson. The master's program, launched by GW last year, gives those who actually intend to be project managers a less accidental way of learning what GW calls the theory, science and application of project management skills. ■

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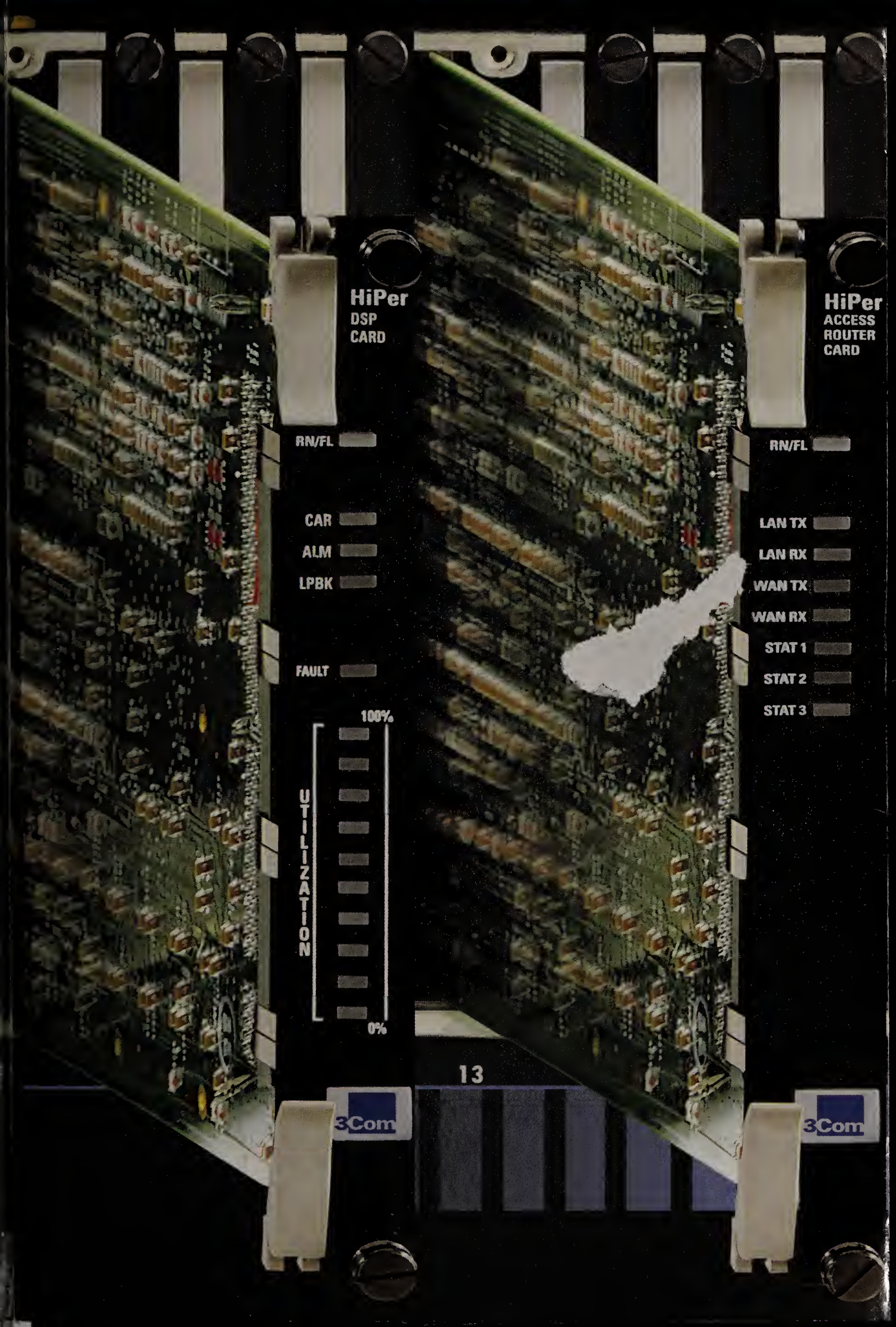
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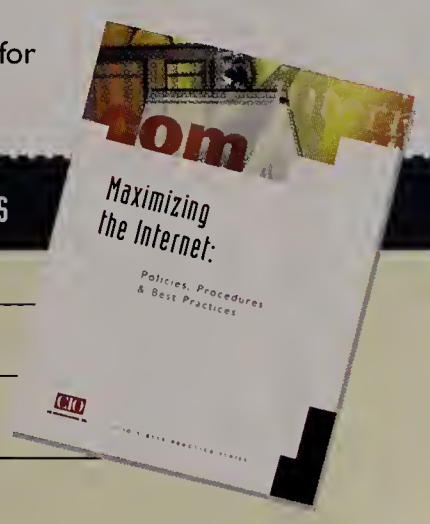

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PROJECT MANAGEMENT

DO

— or —

DIE

IN PROJECT MANAGEMENT, so the saying goes, time is your enemy. If that's true, then the calendar has never seemed such a villain as it does today. The approach of the year 2000 has CIOs scrambling desperately to rescue multibillion-dollar IT investments that don't have enough digits in their memory banks. In their haste, however, many CIOs are overlooking a time bandit with nearly as much destructive potential as the millennium change itself: the gradual obsolescence of the IT department.

The year 2000 problem is simply the latest sign that the traditional structure, strategies and culture of IS are bankrupt—brought down by the advent of outsourcing, powerful packaged "enterprise" software and consultants who know next to nothing about technology but know better than the in-house IS staff how to be patient, political and flexible. But now there is a new urgency to bankruptcy proceedings that have been in progress for years. Traditional IT jobs such as software development, user support and training, systems integration and maintenance have been sold off at auction in the last few years. At this rate, CIOs in the year 2000 will stand before the executive committee to justify the very existence of their departments.

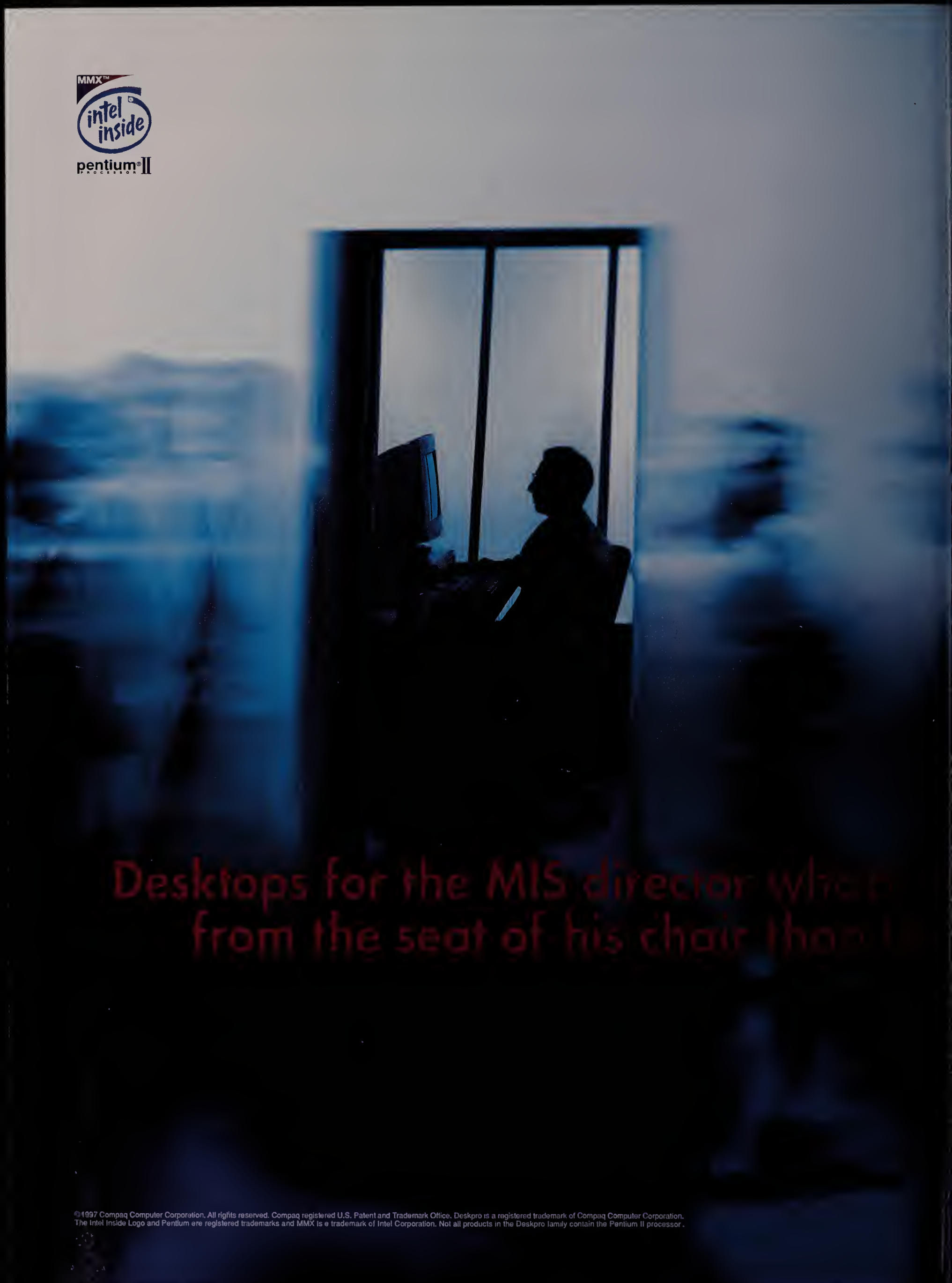
Some CIOs are preparing for that appearance a few years early. They are taking one of IS's oldest skills, project management, and building it into a credible internal investment for the long term. Doing so requires a dramatic change in the way IS has viewed project management over the past 30 years. The culture that once emphasized technical brilliance over schedules and budgets must now meet business deadlines. "More and more, there are specific business strategies and business benefits tied to these projects that require an emphasis on finishing on time and delivering what you promised," says Bill Smillie, a Baltimore-based partner at Coopers & Lybrand, who focuses on quality management. "In 95 percent of all projects I see, the stakeholders would give up functions and features to meet the schedule. In 95 percent of the projects that have failed, the project management did not acknowledge that reality."

But speed isn't everything. The IS group's knowledge of the business and its cultural and political foibles adds a critical dimension—something the outside consultants and outsourcers will never be able to bring to the table. CIOs who raise project management to a high art will not need to plead IS's case when the millennium rolls around.

In this special section, we profile IT departments that are building valuable new services using old project management skills. Some have reorganized themselves into internal project management consulting companies, replete with internal project management methodologies. Others are locating IS staff with the business units and creating direct reporting relationships to those businesses.

Also in this section, we will examine the sources of project failure, and we will follow an IT project manager through a lightning-fast SAP implementation, offering lessons learned from his personal project journal.

These companies and individuals demonstrate that project management, long an "accidental" skill, is fast becoming the new source of technical brilliance in the IT department. ■



Desktops for the MIS director who
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Home Field ADVANTAGES

In the quest for life after outsourcing, CIOs can turn IS departments into project management teams that are much too valuable to be traded

BY BRONWYN FRYER

Walter Curd learned about project management the same way some people learn to swim—he just jumped in with both feet. In 1994, as the newly appointed director of applications at Fujitsu Microelectronics Inc., Curd learned that he and his colleagues had just 10 months to replace FMI's outworn mainframe computing infrastructure with SAP AG's R/3 integrated business process software.

FMI, the San Jose, Calif.-based chip-making arm of Fujitsu Ltd., had to adapt to the new SAP environment to keep the company competitive, and that meant restructuring the IS department as well. Curd's IS group had to learn to focus on projects, not programs. "We decided that we could no longer be task-oriented, just programming what users asked for," says Curd. "We had to become project-oriented to configure what they needed." So programmers joined forces with new staff, who hailed from finance, marketing, accounting and operations. Half of the new IS workers had expertise in "soft" areas such as negotiation, problem solving, and process and requirement management; they also had a command of business English, not just techno-speak. And everyone in IS learned a new system, a new process and a new job. "We were building in a system that forced us into project management best practices," explains Curd. "The IS world here changed when we implemented SAP because everything's interconnected. We needed a lot more business and soft skills to see the connections. We could no longer simply take user requests and program them."

PHOTO BY KENT HANSON

At Fujitsu Microelectronics, **Walter Curd** *(left) and* **Chuck Faust** *turned the focus of IS to projects, not programs.*

Reader ROI

I.S. DEPARTMENTS ARE INCREASINGLY SERVING AS centers of project management excellence for their companies, a function that will become more important as the trend toward outsourcing continues. From this article, readers will learn

- Why project management expertise is the future of IS groups
- The benefits of implementing a project management culture
- How to handle the practical and political details of transforming an IS department into a project management department

Because of the IS reengineering and the SAP implementation, Curd says, FMI's delivery performance to customers increased by 30 percent. Employee productivity improved by at least 10 percent. All planned IS projects were implemented. And today, all the business units at FMI—and many at the $38 billion parent company in Tokyo—turn to FMI's IS group for project management leadership. For example, Fujitsu's electronic devices division has asked FMI's IS group to help it implement a worldwide order-fulfillment system. "In the bad old days, IS's focus was purely on the system with no view to business processes," says Curd. "Most projects would die on the vine. Now we're seen as change agents and enablers in the company."

Dorothy Smith *(below)* *and* **Rosemary Semprez** *keep DHL's projects on the road to success.*

The FMI IS group's radical transformation from glass-house geeks to global gurus is emblematic of the importance of project management in the changing world of IS. CIOs are tiring of the giant sucking sound emitted by too many failed projects. And no wonder: A 1995 study by The Standish Group International Inc., based in Dennis, Mass., revealed that 31 percent of IS projects either weren't completed or didn't meet users' needs. That year, according to the study, corporate America spent $81 billion on failed IS projects, plus another $59 billion on projects that careened over budget and beyond the time estimate and didn't do what they were supposed to do.

In the face of such dire statistics, companies such as FMI are making project management expertise a core competency. They see it as the future of IS. "Taking the smartest programmer and letting him program doesn't make it anymore," says J. Davidson Frame, a project management consultant and director of the International Center for Project Management Excellence at George Washington University in Washington, D.C. "For an IS department to take its position as the information management leader in an organization, it has to become 'projectized,' meaning it has to change its mind-set to focus on projects, not tasks."

Nor can IS organizations continue to rely on outsiders to do project work. Rather, they must build up an infinitely valuable, internal intellectual capital—not just through experience and training but also through serious dedication to the theory and practice of project management. IS groups that excel at project management prefer to use their own employees, who already understand how the company's business ticks. "They understand the business in ways that a firm like Andersen Consulting can't," says Gopal K. Kapur, president of the Center for Project Management in San Ramon, Calif.

Still, project offices are not outsource-proof. Tasks that don't require an understanding of the organization's processes, such as programming or testing, are sometimes passed to consultants. And many companies like to keep their

PHOTOS BY KENT HANSON

options open, using consultants to help them get started down an untrodden path or to provide fresh ideas. "Even when they build internal expertise, most companies want to maintain a sense of flexibility and a perspective of the outside world," says Frame.

Teamwork Counts

Companies that excel in project management share characteristics of the so-called "project office," a general term applied to a company's source of project management expertise. In the world of IS, a project office is sometimes a distinct group of project management experts and support staff; sometimes it comprises the practices of an IS department as a whole. "Virtually every organization I work with has some kind of project office," says Frame. "Project offices are the keepers of the project management best practices and methodologies. They all have different ways of defining themselves, but whether you call it a rose or not, it's still a rose."

Generally, a project office consists of cross-functional project teams, each member of which brings a thorough understanding of a specific business or technical area to the table. The teams identify and resolve technical and business issues early in the process. Some team members serve as trouble-shooters or quality controllers; others are in charge of tracking progress, charting project status or providing administrative support. All report to a project manager, a seasoned pro who has already had his or her "front teeth kicked out," says Frame. "These are people who've been in the trenches," he says. "They have tattoos on their tattoos. They are tough cookies who won't be pushed around by vice presidents." The leaders form a single plan for a given project and manage a portfolio of well-organized, carefully chosen projects, each composed of many smaller projects.

> "We could no longer be task-oriented, just programming what users asked for. We had to become project-oriented to configure what they needed."
>
> –WALTER CURD

As centers of process excellence, project offices may be called upon by business units within the company to act as

Jeff Koroknay, PMP, has been a PMI member since 1992 and is a charter member of PMI's Information Systems SIG. Jeff is presently the program manager charged with developing Honeywell Information Systems' project management and training program worldwide.

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internal consultants. The office staff assists project teams with scheduling and reporting and acts as mentors who help develop project management methodologies and hammer out a set of best practices. Some "projectized" IS organizations are large and decentralized; in these, IS is viewed as a project management center of expertise. In the handful of companies where project management is elevated to the level of a respected science and a high art, IS teams metamorphose into a powerful business unit that's a far cry from traditional IS hierarchies.

Help from Above

Of course, building a project management discipline into an organization doesn't happen overnight, primarily because people both inside and outside IS will insist it's unnecessary to change the traditional modus operandi. That's why an executive-level champion is critical. Indeed, no project office is possible without the commitment of high-ranking people who have the political prowess and the influence to sell the idea to executives, end users and reluctant IS staff. "We strongly advise the CIO to play an active role in educating business executives on the need for their involvement and support for high-risk projects," says Kapur.

FMI found its champion in Vice President of Operations Chuck Faust. The company was falling far behind its competitors in getting products to customers, and Faust strongly believed that installing the SAP business process software and projectizing the organization along with it were critical to the company's survival. He put his own job on the line to convince the mainframe-oriented execs at the parent company of the need for both SAP and the organizational changes it would require.

Faust's risk paid off big. As a result of the SAP implementation and the IS group's new project management focus, IS staff was reduced by 20 percent, but "because people had a broader skill set and understood how the software applies to business," productivity rose by 30 percent, says Faust. Subsequent projects—such as a just-in-time inventory system designed for Compaq Computer Corp.—have proved so successful that FMI has won new business. "As a result of our knowledge of project management, Compaq put us on its preferred-vendor list," says Curd. "Now we can leverage our just-in-time system with any vendor. The value of that is far beyond any ROI calculation."

Blurring the Lines

Six years ago, Washington-based Fannie Mae traded in its mainframe for a client/server environment. Like FMI, the com-

Teach Your Staffers Well

Successful project management groups are trained, not born

In ORGANIZATIONS WHERE project management shines as a core competency, training matters. Really matters. Project managers know more than just how to create pretty Gantt charts using some fancy project management software. At Washington, D.C.-based Fannie Mae, for example, IS personnel undergo weeks of intensive training in project management with a systems management flavor, according to Training and Development Director Gus Crosetto. Besides learning about programming, data structures and database concepts, IS staff members are taught project management skills such as negotiation, leadership and partnering with business units through the company's Business Technologist Program. Another three-year, core curriculum program called Systems Education and Learning Technologies, open to all employees, also includes many project management basics. "The goal behind Fannie Mae's project management training is the imperative to get the job done right the first time," says CIO Bill Kelvie.

DHL Worldwide Express of Redwood City, Calif., and Fujitsu Microelectronics Inc. (FMI) of San Jose, Calif., subscribe to slightly different project management training models. DHL, for example, is training all of its project people in the Chicago-based Project Management Institute's methodology and the ABT Workbench tool. To date, the company has trained more than 120 people in project management and software estimating principles. FMI has its own mentoring model of training under which newer employees work closely on a project team with more experienced project managers, learning the ropes in a sort of apprenticeship. "In each project, we attempt to move people with more experience up a level and give younger people experience in managing projects," explains Walter Curd, director of applications. "It keeps them interested in learning valuable skills, and the older people like to pass them on."

Dayton, Ohio-based NCR Corp., a computer equipment manufacturing and network services company, offers its project managers a more formal training route. Headed by John A. Kennel, Vice President of professional business services operations, NCR's worldwide program management group is the project management center of the corporation. A technical staff of 3,500 undergoes formal training in the core principles of project management, as recommended by the Project Management Institute. Even the highest-level executives take an intensive three-day workshop, at the end of which they are tested and certified. The goal is to create a project management culture throughout the company's 130 sites worldwide, according to Kennel, who holds a master's certificate in project management from George Washington University.

Regardless of the training model they choose, IS organizations that want to succeed need employees with a firm foundation in project management skills. "The idea is to have people understand you when you come into the room so that everyone is using the same terminology and templates for conducting their projects," says Kennel. "You need to have everyone working from the same page regardless of where they are in the world." *–B. Fryer*

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pany was forced to examine its project management processes, and as a result, it established a project management organization. The world's largest diversified financial company and the biggest source of home mortgage funds in the United States, Fannie Mae and its processes manage nearly $1 trillion worth of outstanding mortgages. Fully 1,000 of its 3,500 employees work for the centralized IS department, which is stretching the concept of the project office. At Fannie Mae, IS project managers and developers—dubbed "business technologists" by CIO Bill Kelvie—operate in both technical and business arenas within the organization. "It's an increasing phenomenon to find business and technology departments becoming more blurred in a corporation," says Kelvie. "Business and technology can no longer be separate and developed in a vacuum. That's why we train our employees in broad-based project management disciplines." (See "Teach Your Staffers Well," Page 32.)

IS project managers at Fannie Mae spend so much of their time working in cross-functional teams that they frequently report to more than one master. "We're expanding out of the old glass house," attests Vice President of Portfolio Systems Bill Farrell, a project management team member who reports both to Kelvie and the head of another business unit. "We have a central IS organization but organize our work according to projects in very close partnerships with business units," says Farrell. Sometimes these are direct-line reporting relationships. Every project has a business and an IS lead.

Hit squads of five to seven project management experts drive projects from inception through completion by following Fannie Mae's enterprisewide project management methodology. Called WHEELS (Ways to Help Evaluate and Execute the Lifecycle of Systems), the methodology combines project management, scheduling, and materials and resource management techniques. Team members apply WHEELS through initiation, scoping and planning, business analysis, technical design, construction, system testing, implementation and rollout of a project. Each phase involves multiple steps and requires specific deliverables, such as completion of a prototype by a given deadline. "We look at WHEELS as a template and adapt it to each project," Farrell explains. "Since every project goes through several levels of WHEELS reviews, there are no surprises at the end."

The project team meets with users at every phase and develops, tests and refines prototypes to meet user requirements. "IS folks have to work with customers and deal with people who don't know technology," says Farrell. "It forces

Gus Crosetto, Bill Kelvie *and* **Bill Farrell** *have made Fannie Mae's IS staffers broad-based project managers.*

PHOTO BY KATHERINE LAMBERT

RS/6000

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them into human interaction." For example, a group of users must test all applications and sign off on them before they move into production. That ensures IS won't have to go back and retool the applications to meet user needs. Getting signoff at every stage is a painstaking process, says Farrell, but it's worth it. "If users haven't signed off at the front of the project, it takes months to get [their approval] afterward," says Farrell. "The methodology ensures that all the projects we do are done on time."

By following the WHEELS template, says Training and Development Director Gus Crosetto, the project teams have become as efficient as airline crews: "We have flight attendants, mechanics, pilots and a ground crew who can come together quickly and know what roles they have to play." And the process works: Of 120 software development projects Fannie Mae's IS group has built in the past six years, 90 percent have been successfully implemented—a brilliant record compared with the industry average of about 30 percent. For a 30-application sample, Fannie Mae calculates that for every dollar invested, it earned revenues or saved more than $4 per year.

Guidance Counselors

While Fannie Mae's project management organization is broad and decentralized, some IS organizations follow a more conservative model of the project office, where a small supporting staff frees project managers to wrestle with political and strategic knots. Kapur likens the role of these kinds of offices to that of a restaurant's maître d'—they are responsible for the smooth orchestration of projects and they watch out for risks. "This kind of project office keeps an eye on everything and will tell you when a project is a time and money sink," he says. "The staffers support the project manager, use project management tools to look at the vital signs and give early warning if something gets behind schedule."

One company with such a project office is DHL Worldwide Express of Redwood City, Calif. In 1995, the global shipping company set up a project office not only to prepare for a $4 million Web-based ordering and tracking system but also to help IS manage its projects and provide additional resources to support the company's business groups. (Currently, dozens of DHL's 250 IS staffers are working hard on the Web-based system, which customers will be able to tap into by phone, Internet, modem or DHL's electronic data interchange system.)

The two people who make up the DHL project office work primarily as consultants and mentors to project managers and their teams; they also manage tools and reports, and they make sure everyone on a project team adheres to a repeatable project management process. Applications Services Manager Rosemary Semprez, for example, provides tools such as the ABT Workbench as well as templates for each project manager to use. "We allow people to manage projects only if they have a good combination of business, technical, leadership and communication skills," says Semprez. "If you're going to practice project management, it also helps if you're a little bit entrepreneurial. You have to be visionary."

Project managers who are responsible for large, complex and cross-organizational projects report to Dorothy Smith, vice president of applications development. But, as is the case at Fannie Mae, the team members report to both the head of IS and are closely aligned to the business unit sponsoring the project.

At DHL, practicing project management largely means separating the good ideas from the bad. Project and IS managers must put their ideas through at least three incremental stages of investigation: analysis, proposal and charter. Approval to move from one phase to another is granted by an executive committee. Indeed, project management at DHL is mostly a matter of playing politics and pushing back, observes Smith. "Users will tell you that a project is a slam-dunk, and you have to show them how many man-days it takes to get software up and running and supported," she says. "You have to give them evidence that managing the project will get them what they want in a timely fashion."

Though it's too early for DHL to estimate a return on its $150,000 investment in people and software for the project office, the company has already reaped a full payback by preventing wasted efforts, Semprez says. "Before, someone would get an idea and run off and do it," she says. "There wasn't a formal process. If we started 100 risky projects, 90 percent of them failed." But by doing a detailed analysis for risk and impact at each stage, DHL can spend money where it makes the most sense. "It's better to spend $50,000 to find out that a project doesn't make sense than to spend $250,000 on something that won't get used," says Semprez. "Now we take on the most important projects; of these, we believe 90 percent will succeed." The company is now moving into beta on the ordering and tracking system project, for example, and everything is running on time and on budget. "By doing the upfront project work in the planning process, we're able to stay on schedule," she says.

Additionally, IS productivity at DHL has risen because the staff focuses more on single projects. "Rather than working on a little of this and a little of that, responding to whoever squeaks the loudest or constantly re-creating the wheel, our people are now working consistently on something from beginning to end," says Semprez. "The quality of their work is better."

> "It's better to spend $50,000 to find out that a project doesn't make sense than to spend $250,000 on something that won't get used."
>
> –ROSEMARY SEMPREZ

And improved quality, as any CIO knows, is the key to improving the company's bottom line. CIO

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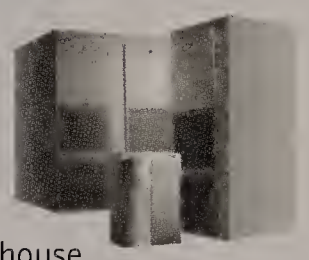

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Transactions in the Age of the Consumer

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Adapting his company's processes to R/3 had both human and financial costs for **Neal Myrick.**

Reader ROI

IMPLEMENTING SAP CAN BE A TORTUOUS and expensive process, especially for a multinational company like Visio Corp. From this story, readers will learn essential tips for SAP projects, such as

- How to manage consultant relationships
- The kinds of personal conflict to anticipate
- The business process issues to plan for

Complex "enterprise software" packages like SAP's R/3 can make or break a project manager's career. For Visio's Neal Myrick, the goal was clear: Deliver a solid computer system, not the moon.

THE BIG UNEASY

BY CHRISTOPHER KOCH

A therapist might describe Neal Myrick's tumultuous relationship with SAP AG's R/3 software as a bit dysfunctional. The software treats Myrick, worldwide IT and facilities director at Visio Corp., as it does any other project manager—it puts him through the ringer. All aspects of an implementation must be on R/3's terms, which essentially boil down to "My way or the highway."

Software with an attitude. Why bother? Because R/3 is as ambitious as it is demanding. R/3 is a business—your business—replicated in software. As complex as a business, R/3 can require almost as much time, people and money to get it up and running. But if it's installed correctly (and that's a big if), R/3 can make information more accessible, more shareable and more accurate across a company.

The ambition and sheer chutzpah of so-called enterprise software packages like R/3 are redefining project management. The lure of a single, stable, integrated computing standard within a company is proving irresistible to many CEOs and CFOs. But for project managers who must guide the effort toward that tempting business goal, the challenges are immense.

Creating a single software standard across a company means trashing old system standards, excavating all the old data and jamming it into the new system. Project managers must work with cross-functional teams of business and IT staff. They must also cope with the shock, fear and outright resistance as people wonder how the new system will affect their jobs. Keeping control demands an impossible combination of roles: technologist, business expert, drill sergeant, motivational speaker, politician, psychologist.

PHOTOGRAPHY BY FRED HOUSEL

This is the story of one project manager's struggle to balance those roles and bring home an SAP implementation, on time and on budget.

Long before the project's official kickoff in March 1997, Myrick had agonized over the decision to install SAP. He and his staff had read the horror stories about million-dollar R/3 projects gone south. "We were afraid SAP might be too complex for a small company like ours," he recalls. But SAP, with most customers in the Fortune 500, is now catering to companies like Visio—a small, $59 million Seattle-based software maker—with a pre-fab installation methodology, Accelerated SAP or (ASAP).

Visio's history of rapid growth turned out to be a plus. Change is a constant at the company—founded seven years ago by Jeremy Jaech, Visio is growing like a weed under the Seattle drizzle—and few Visio staffers have been around long enough to become set in their ways. But they have been around long enough to notice problems with Visio's legacy system, based on Platinum Software Corp.'s Btrieve financial software. A failed attempt to upgrade the system in Visio's Dublin office in 1995 had left employees there with a sour aftertaste.

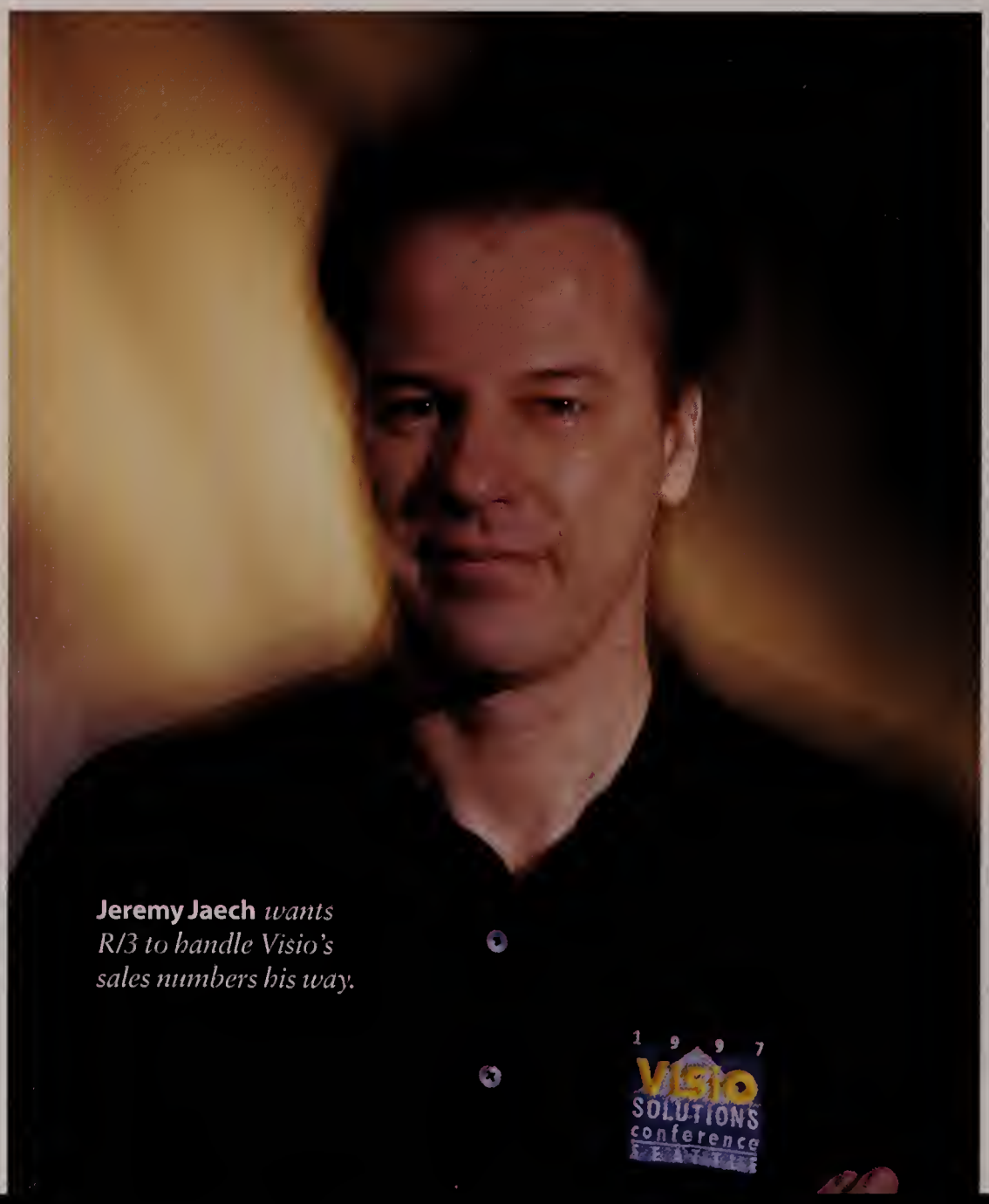
When Sue Petersen, Visio's general ledger supervisor, visited the Dublin office in 1996, she discovered just how unpopular the system was. "Dublin wasn't doing their checks through the system," she recalls. "They were manually writing them and then keying them into the system."

Many of the financial reports that Dublin sent to Petersen each month were not being generated from Btrieve, but from arcane Excel spreadsheets developed to do what Btrieve could not. "We were hurting," says Eleanor O'Neill, Visio's information technology and facilities manager for Europe, who ran things at Visio's operations headquarters in Dublin. The pain was felt mostly in terms of diversity—cultural, linguistic and monetary. Dublin deals with 61 different international distributors and oversees international manufacturing of Visio's flagship drawing and diagramming product in an ever-increasing number of languages.

Handling that kind of diversity has always been SAP's greatest strength. SAP AG was founded by three German ex-IBMers in 1972, and its enterprise resource planning software came of age in Europe, where dueling currencies, cultures and bureaucracies are the norm. In the past three years, SAP (which translates to Systems, Applications and Products in Data Processing) has successfully adapted its products to U.S. needs as well, giving Visio the breadth of coverage it needed to get Seattle and Dublin back in sync. That's why, when March rolled around, Myrick was ready and willing to let Visio's processes be dictated to by R/3. "We're not so invested in the internal processes that we won't be able to adapt to SAP," he said at the time. In exchange, the company expected to gain a clear, filtered pool of Teutonically precise data that could be viewed by everyone in the company.

But adapting to R/3 has its own set of costs—both human and financial—as Myrick would shortly discover.

The prelude to the project required studying various enterprise software vendors and aspects of Visio's business. The team implementing the software—all members of Myrick's IT staff—were each assigned to manage different SAP "modules," smaller pieces of the software designed for specific functions. Tying together all of these modules across Visio created enough cross-



Jeremy Jaech *wants R/3 to handle Visio's sales numbers his way.*

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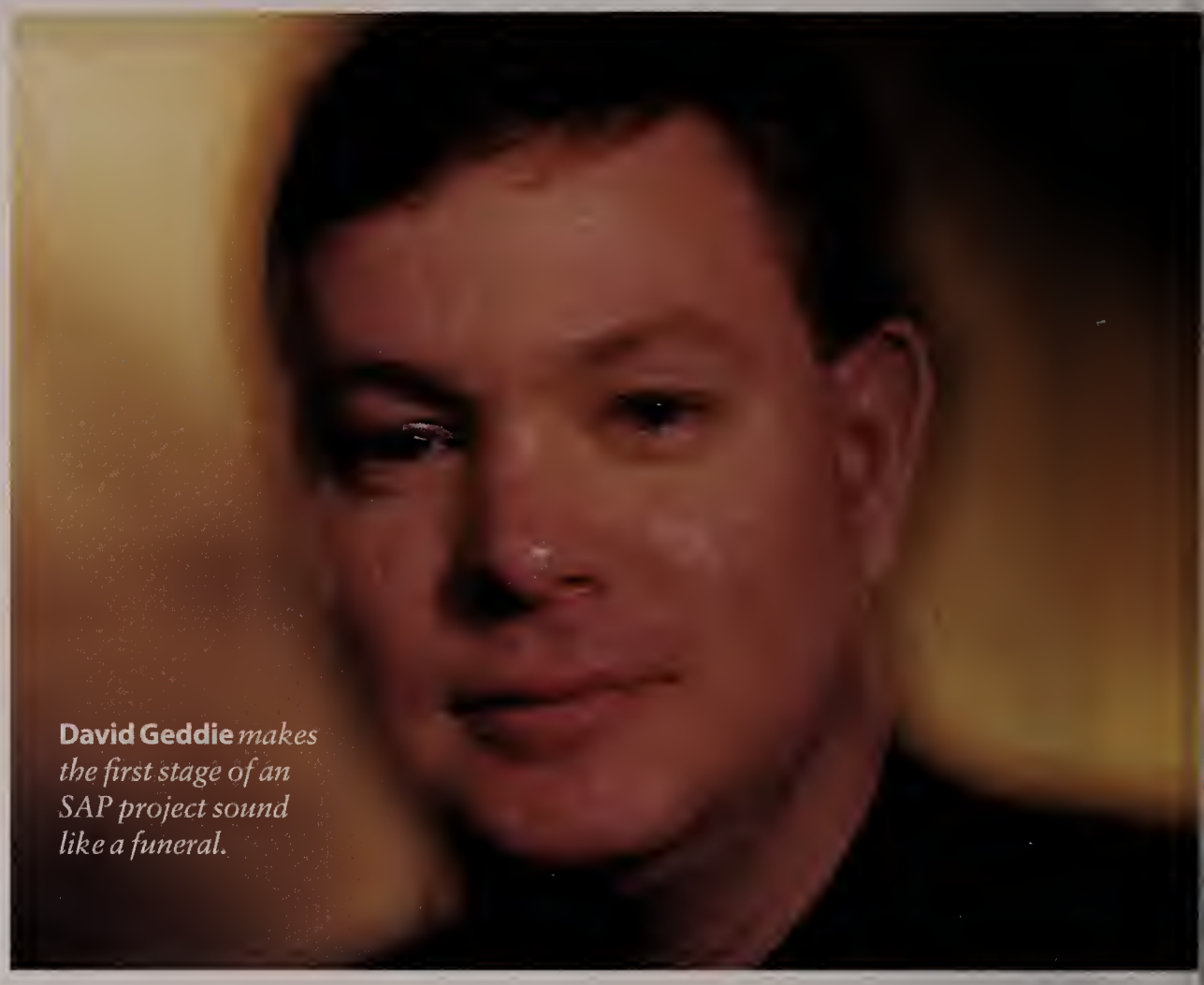
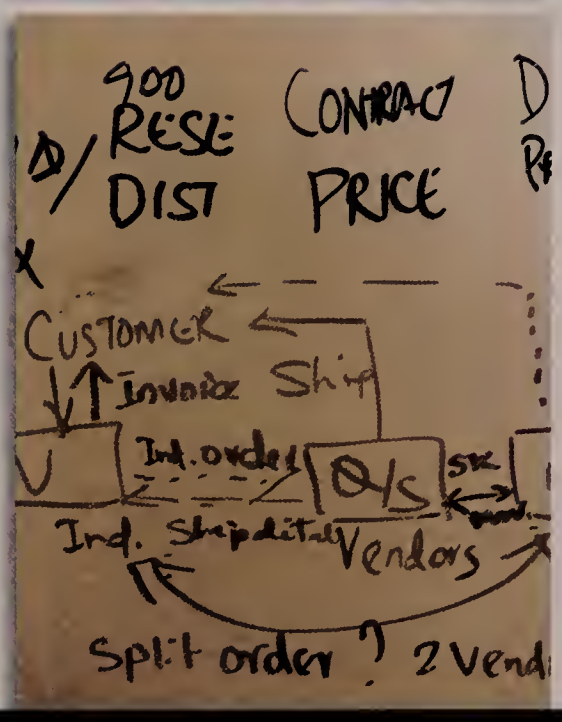


David Geddie *makes the first stage of an SAP project sound like a funeral.*

functional and cross-boundary complexity that three project managers were named: Myrick for the technology, Controller Ed Leary for the business processes and O'Neill to coordinate Dublin's efforts. Visio was also incredibly reliant on consultants, as are all companies that implement SAP (see "Basic Instincts," Page 48). Yet even with outside help, Visio's plan was ambitious: to implement five modules in five months for both the U.S. headquarters in Seattle and its Dublin outpost.

To help coordinate the project, Myrick hired Hewlett-Packard Co. consultant David Geddie. To hear Geddie talk, preparing for SAP is like preparing for a funeral. "There's always a sense of loss and remorse in the first 30 days of an engagement," says Geddie, who speaks in precise cadences and almost never pauses. "The customer is shedding the old system and is concerned that he might not have made the right decision to spend all that money. At that point, I'm trying to bolster the customer's confidence in [his or her] choice, and I'm trying to establish my own credibility."

Geddie would need all the credibility he could muster in those first few weeks as the Visio team struggled to explain the business to HP's people in a series of intense interviews. That phase, which Geddie calls the "business blueprint," is designed to reveal "the hopes, dreams and requirements of what people want out of the system," Geddie says.



"I decided to let the functional module leaders head up each of the business blueprint meetings," says Myrick. "I was convinced that the less involved I was at that stage, the more ownership the team members would feel toward the system when it was finally implemented."

Ownership of the new system would prove to be an issue elsewhere in Visio as well. "One of the biggest issues for me was sales commission analysis," says Tim Buckley, Visio's vice president of worldwide sales. "I wanted to retain the flexibility to change the commission structure when I needed to because it's such a critical process. It was my understanding that it might take awhile to do that within SAP and that once it was done, it wouldn't be easy to change." Because the commission structure is so closely linked to the organizational structure of the sales groups, Buckley and Myrick decided to keep commissions analysis out of R/3.

Although the Visio team was tempted to do whatever it took to accommodate highly visible, prized processes like sales commission analysis, there were two choices to make on any process that resisted the lure of SAP: Get it all or get it done. Visio was focused on getting it done.

Expediency has its own dangers, however. Keep too many important processes out of the new system, and companies will question why they paid the big bucks for fancy German software. Myrick and Leary were in the unenviable position of having to carefully manage Visio's SAP expectations downward, not upward.

"We heard that a sales manager in Europe was telling people that they were going to get all these cool sales reports out of SAP," recalls Myrick. "That raised a red flag for the project managers. If sales was anticipating a one-button solution by July 28—our go-live date—we needed to reset those expectations to one of bare-bones functionality." Adds Leary, "We had to tell them that they weren't going to lose any reports out of this, but they probably weren't going to gain any either, at least not until later."

Jeremy Jaech, Visio president and CEO, is one of those khaki-clad boyish power geeks who drive the software industry today. (In a previous entrepreneurial life, Jaech helped develop PageMaker desktop publishing software.) Intelligent and aggressively ambitious, he's as conversant in the mechanics of Visio's business as he is in its software. Though he has had little to do

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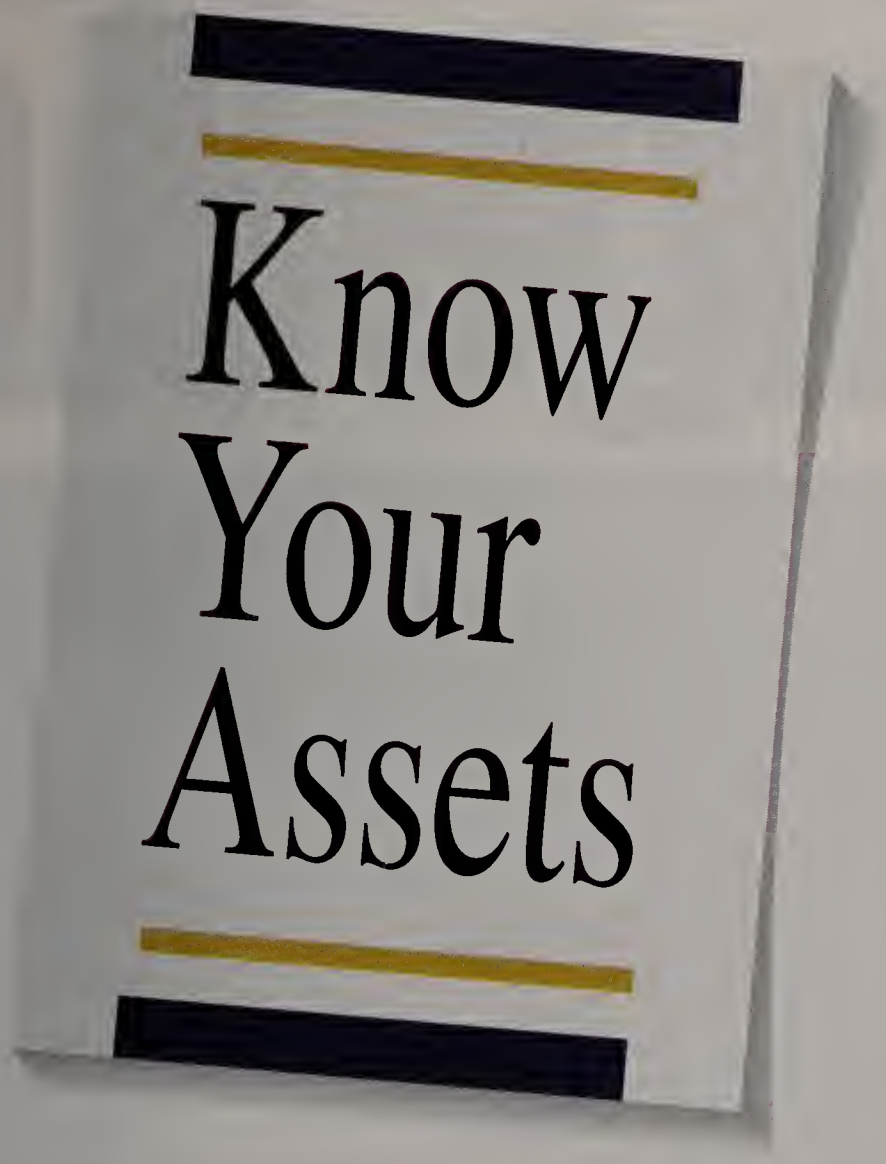

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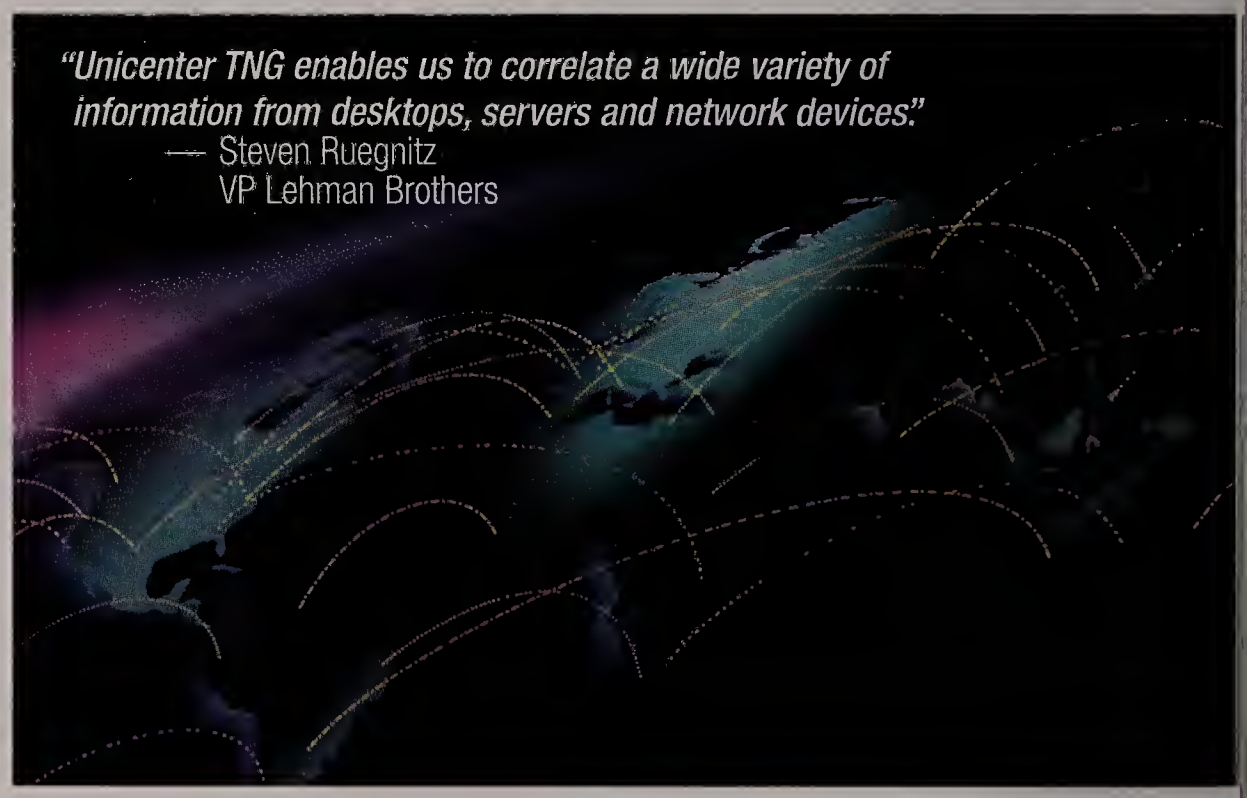

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with the R/3 project since the executive committee signed off on it in February, he knows what he wants from it. "If I had to choose the single most important thing I want from R/3, it's to handle our deferred channel revenue process," he says.

Deferred channel revenue is finance jargon for making sure a sale is really a sale. According to Jaech, many software companies "dump" extra product with distributors at the close of a quarter so that they can pump up weak sales revenues totals. The downside of that strategy is that at some point much of that extra software may flood back to the company in unsold returns, which will depress revenues the next time around. What's worse is that distributors have gotten wise to the scheme, says Jaech, and they pressure desperate software makers for special deals before they will accept inflated deliveries.

To break the cycle, Visio tracks sales through to the retail outlets and compares the retail sales with the number of units shipped to distributors each month. If the retail stores sell less than Visio anticipated, Visio defers some of the revenues from the sales it made to the distributor; if sales are up, it adds back some deferred revenues from previous months. The process smoothes out revenues and prevents a tidal wave of unexpected returns. Unfortunately for Myrick and the Visio team, it's a complex and fairly unique way of handling revenues—two attributes that really annoy R/3.

Nearby, the various R/3 module teams are hunkered down on the 13th floor, which has been set aside for the team's exclusive use. This is command central: a nondescript suite of small offices divided up like R/3 itself. Taped to the doors of each office are sheets of white paper with module names scrawled across them. MM (for materials management), FI (for finance), AM (for asset management) and CO (for controlling) lucked out and got the window offices, while SD (for sales and distribution) is closer to the small kitchen's soda and coffee machines that flank the large, central conference table. The sprawling conference table is where the various team members meet to talk about the big picture.

Besides the constant smell of coffee, there is a steady fusion of voices, each with a different accent—American, Irish, Chinese, South African and Indian—all speaking the same unfathomable language: SAP. Meanwhile, Dublin is busy setting up its office structure to match that of Seattle's. Conference phones are installed in each of the module offices so that Dublin's team can follow the ASAP templates alongside the HP and Seattle teams. For more difficult issues that come up, videoconferencing equipment is available for something more akin to face-to-face discussions.

Geddie leads a meeting of all the different module heads to discuss the processes that are too important to lose but too complex for SAP to handle through its standard set of reports. They are the processes that will cost Visio now and

Basic Instincts

Fuzzy feelings may turn out to be the most important part of a consulting relationship

WORKING WITH CONSULTANTS effectively on a project like Visio Corp.'s is really a practice of managing relationships and figuring out the best methods of communicating highly complicated business rules and concepts. At Visio, it was done on a daily basis with adjustments being made all the time to compensate for various issues including language barriers and unfamiliarity with a company's specific business.

In discussing why he chose Hewlett-Packard Co.'s David Geddie to be the consulting lead, Neal Myrick, worldwide IT and facilities director at Visio, uses a lot of vague-sounding phrases like "chemistry" and "speaking the same language." These fuzzy feelings may be the most important part of an SAP R/3 consulting relationship. Since Myrick couldn't install the software himself, he had to make sure he got along with trusted consultants. "When people do systems projects, they usually try to maintain a sense of confidence about how it's going to come together," says Myrick. "With SAP, it isn't so much a sense of confidence as it is faith. We've had to have a lot of faith that the HP people are leading us down the right path. The schedule is so fast that you can't see the end of the path. You're just walking in this four- by four-foot path of light, being led along by the consultant, and the rest is darkness. It's not a comfortable feeling."

"Knowledge transfer" between consultants and in-house staff is a major issue in most SAP implementations. "The team worried about wasting the time it took to figure out things themselves that could have been more efficiently resolved if HP had had the time to show them the way," says Myrick. But since Myrick's IT staff needed to manage and maintain the new system after HP left, the more they understood about the configuration of the system, the better. "When you hire a consulting group with a fast SWAT team approach, you must find a way to become self-sufficient," he says.

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perhaps again in the future because they require custom programming in SAP's complex Advanced Business Application Programming (ABAP) language, work that is not included in HP's consulting contract. Custom reports are expensive and time-consuming. "We hope you can learn to love SAP's standard reports," Geddie tells them.

Then, as Geddie reviews the report, module by module, process by process, he looks for consensus on problems and options for resolution. Most issues are quickly resolved by a twist of the process or a tweak of R/3's standard reports. Working through the crankiest processes, he pauses when he gets to the one that deals with Visio's way of handling inventory. "Here we have the big ugly," he says. It's one of those processes that stubbornly refuses to give in to R/3's demands. At the root of the problem is R/3's pickiness about inventory ownership. Visio outsources its manufacturing, blurring the lines of ownership between Visio and its manufacturing vendors. But R/3 doesn't let companies track something they don't own outright, and it doesn't recognize inventory that has no assigned value, like trial software, marketing handouts and other freebies. The consultants offer Visio two massively unpopular choices: Visio could assume ownership of the inventory throughout the manufacturing cycle, or it could send two invoices to cover the blurry lines of ownership along the way.

Leary isn't happy with the first option because it costs money to keep inventory on the books. "Owning all that inventory ourselves? Hell, the cost will go all the way back to the stockholders," he fumes.

Ed Leary *had to ask Visio's sales managers to expect less from the system.*

Meanwhile, Susan Kilbridge, a Dublin representative, finds the second suggestion unacceptable. "Our customers send us one purchase order, and we send them two invoices? We shouldn't have a system that makes more work for our customers."

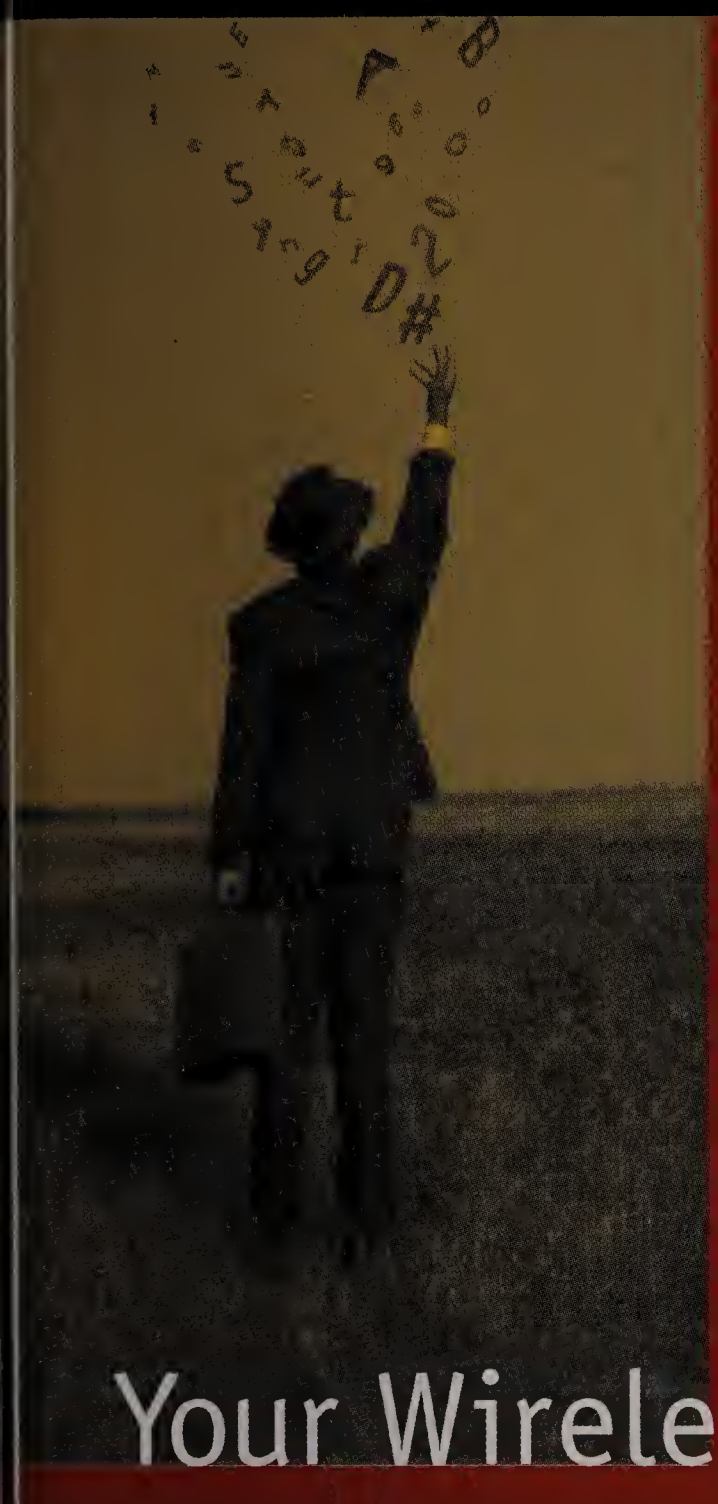
Geddie tries to keep the anxiety to a minimum. "We're not trying to identify exactly how we're going to solve the problems at this stage; we're just going to flag the processes that need change," he says. "You'll have an opportunity to work with the HP team to develop the processes based on the boundaries we've outlined here."

Those boundaries could become expensive—ABAP programmers charge Visio per report—so Geddie talks up his consultants' ability to perform magic with the standard reports. "These guys will work to the ends of the earth for you," he says. He pans the room and asks, "if all else fails, can you live with the two-customer invoice process?" There's some grumbling until John McCabe, a Dublin project member, jokes, "Yeah, as long as you keep the AK-47 away from Susan."

For four weeks—from April 4 to May 4—HP leaves Visio during the "simulation" phase to configure 60 percent of the system according to the requirements specified in the business blueprint. After HP completes the basic hardware and software configuration, it's back to Visio to begin stuffing the more recalcitrant processes into R/3.

Because Visio is small, the volume of data that needs to be included in the new system is also relatively small. Still, these various "systems," which include individually maintained spreadsheets and databases, have never been centrally managed. They need to be put it in a format to satisfy SAP. But the project time line is so tight that things come up one day that need solutions the next. "In a schedule where the configuration is only three days ahead of the validation and testing, it is impossible to do such upfront planning," says Myrick.

He decides to have his staff sign up for SAP's Early Watch program, where SAP logs into Visio's system over its frame link and analyzes workload on its databases and servers. Myrick then hires a data migration consultant to do the



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programming required to pull all the data required. "There's no possible way I could have found enough time to do it," he laments. Another lesson learned: You can't start looking for extra help too early. Anyone starting on an SAP implementation should have his or her recruiting department start looking for SAP contractors to call in if required.

The Visio team is constantly providing HP with a lot of information that isn't acted on until the consultants need it. Oftentimes, the consultants ask for the data—again—forgetting that the Visio team had provided it earlier. Both teams wind up frustrated and aggravated.

"The best resolution is for the HP team to reject any information that isn't appropriate at the time," says Myrick. "They could say something like, 'Please hold on to that for a few days until we get to that portion of the implementation.' That way, the Visio team wouldn't be led to believe that something was being done with the data, and the HP team could focus on the configuration without distractions."

During the final few weeks before the go-live date, the project becomes almost entirely focused on resolving the few problem processes that remained from the discussions in March and April. R/3's reporting weaknesses dog the team's attempts to get the system up and running. Although the custom interfaces built by HP for the project will eventually cost less than 10 percent of the overall $1.5 million project budget, the frustration costs are much higher.

"SAP is great for looking at one particular customer or one particular customer order," says Leary. "But if you want a global view of all your customers or all your orders, it doesn't work well. The standard reports let you look at only one customer or one order at a time; you can't combine them in the system. It's great at transactional reporting—you can drill down to an incredible level of detail on each transaction. But again, you're only looking at one transaction."

Some of Visio's most important processes, such as inventory ownership and deferred revenues, continue to bedevil the HP consultants and the Visio team because they require more than one transaction. HP agrees to absorb the cost of fixing the inventory ownership process, ultimately conceding that sending two invoices to customers each month is unacceptable.

The good news is that the consultants will not need to change any of R/3's core computer code to accommodate Visio's processes. Fiddling with R/3's guts is very dangerous. It's the software equivalent of prying open your new VCR with a screwdriver the minute you get it home. Even so, Visio toyed with the idea—briefly. "We got to a certain point where one of the teams wanted to change the name of a field in the system—what's known as a 'repair,'" says Myrick. "Our rule going into the project was that we weren't going to do repairs unless absolutely necessary because upgrading the system down the road becomes more difficult. You have to keep careful records of what you did and then do it all over again each time you upgrade to a new version."

Two weeks prior to the go-live date, the project is so intense that there is no longer any real schedule. "We get together in the morning and decide what to do next," says Myrick. The ad hoc approach works, but not without taking a toll on the team. "They come in each morning not knowing what they'll be doing. And at that point, they feel as if each hour were precious," he says.

Each time a new piece is added to the system, they have to go back and test it again. "It is an endless cycle of test, configure and test," says Myrick. "We have conference calls once or twice a week with Dublin to say, 'We have no idea how to do this piece,' and Dublin answers, 'We've done that, we can explain it.'"

However, the countdown to July 28 proves somewhat anticlimactic for Myrick and the Visio team. The scramble continues, but the endless cycle of testing gives the team a pretty good idea of how R/3 will work. There will be no magic flip of a switch to reveal wondrous new screens of data—the team has seen it all before, too many times. Project duty at this point is like a plumbing job, a process of making sure the sales orders don't leak on their way to the finance department.

The HP consultants are shipped off for the final week to Dublin in a nod to the extra complexity of the installation there. Many bugs temporarily persist, and some of the reports are ready in time, but it is clear by now that R/3 is going to run when the system goes up at 8 a.m., Greenwich Mean Time, July 28, 1997.

Shortly after, Myrick writes the final installment of his project journal:

"July 30: So far so good. Dublin was up and running by Monday morning (midnight our time). They raised 24 sales orders before the 10 a.m. cutoff to their vendors, which allowed same-day turnaround. Eight hours later, Seattle was struggling with some inventory import files at first, but they were also able to raise sales orders and meet vendor same-day-ship cutoffs.

The teams had their respective champagne toasts at the end of the day, and Jeremy [Jaech] came to the meeting room to congratulate everyone on a job well done. Now it's on to phase two...." CIO

Senior Editor Christopher Koch can be reached at ckoch@cio.com.

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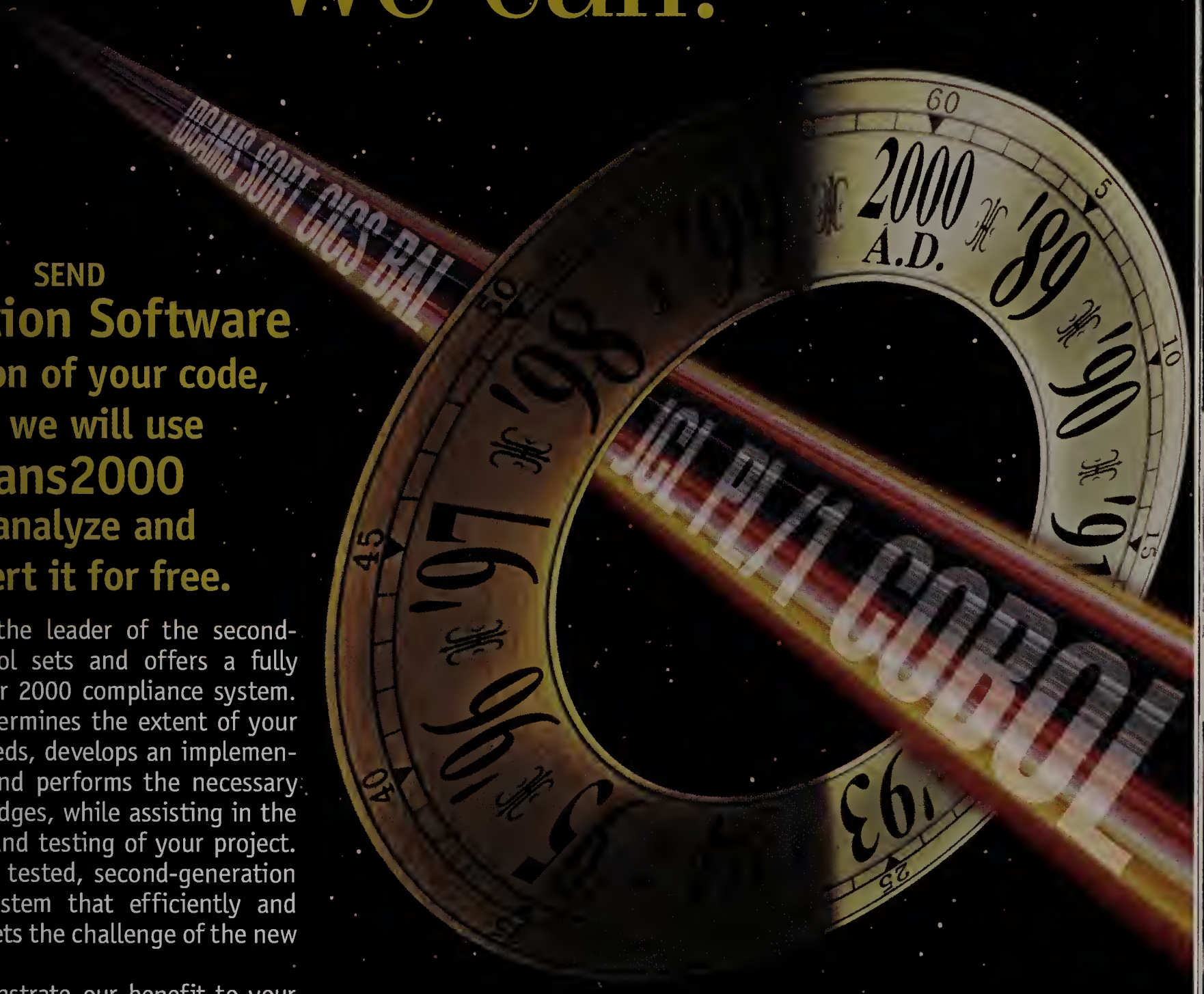

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When BAD Things Happen to GOOD Projects

The warning signs of failure are detectable long before a project falls apart. You just have to know where to look.

BY TOM FIELD

In 1993, the Oregon Department of Motor Vehicles embarked on what was reported to be a five-year, $50 million project to computerize its paper-based records. By improving the DMV's access to license and vehicle registration data, state officials thought they could downsize the DMV workforce by one-fifth and save $7.5 million annually.

After two years, the five-year project's completion date crept to 2001, and the estimated total budget ballooned to $123 million. Finally, in 1996, a prototype was rolled out, but, according to one consultant brought in to examine the project, the system was fired up on a Monday, and by midweek the DMV test office had longer lines than ever backed up around the block. The new system was a total failure. Soon after, in response to public outcry, state officials killed the project. In the aftermath, the only downsizing that occurred was among the DMV officials who oversaw this disaster, and now there's an active movement among voters to privatize Oregon's DMV.

Reader ROI

ACCORDING TO PROJECT MANAGEMENT analysts, 40 percent of all IS projects fail, costing U.S. businesses approximately $100 billion annually. This feature story draws from the experience of project management gurus, consultants and practitioners to show readers

- ▶ Why projects fail
- ▶ How to turn around failing projects
- ▶ When to pull the plug

ILLUSTRATIONS BY TED PITTS

If only that case were the exception among IT projects. But it's not even the only DMV meltdown—California's $45 million boondoggle in the early '90s earned great notoriety—and it's just one dramatic example of project failures that plague most IS organizations. The Standish Group International Inc., a Dennis, Mass.-based consultancy whose landmark 1995 "Chaos Report" opened people's eyes to the ugly realities of IS project failure, has turned up some new findings in its current research:

- Forty percent of IT application development projects are canceled before completion;
- Thirty-three percent of the remaining projects are "challenged" by cost/time overruns or changes in scope;
- Together, failed and challenged projects cost U.S. companies and government agencies an estimated $145 billion per year.

Some IS projects are doomed by complicated corporate politics or technological evolution—both business needs and IT tools, after all, are subject to change. James H. Johnson, chairman of The Standish Group, has a pet catch phrase built around this theme: Complexity causes confusion and costs. Beyond Johnson's "four C's," project management experts say, IT projects often die simply because IS departments fail to follow the basic project management principles that help ensure project success in the engineering and construction industries (see "Home Field Advantages," Page 28). "It's all very basic," says Tom Jones, an Electronic Data Systems Corp. (EDS) account manager who brings to his engagements 25 years of engineering/construction project management experience. "There are a lot of excuses [among IS professionals] about how the new technologies are unstable or the IS organizations are constantly changing, but to me, project management is project management."

Lost along the Way

10 signs of IS project failure

1. Project managers don't understand users' needs
2. Scope is ill-defined
3. Project changes are managed poorly
4. Chosen technology changes
5. Business needs change
6. Deadlines are unrealistic
7. Users are resistant
8. Sponsorship is lost
9. Project lacks people with appropriate skills
10. Best practices and lessons learned are ignored

Why Projects Fail

IS projects are often doomed from the start because developers fail either to properly assess users' needs or to accurately define the project's scope—or both. The Oregon DMV case is a prime example of the latter. "All the [state's procurement and development] rules were followed," says Peter M. Dolan, president of PhDesigns Group Inc., an independent Ukiah, Calif.-based consultancy, who was called in to assess the project in its latter stages. "The vendor delivered everything it said it would, when it said it would." The problem was no one ever thought to have the vendor actually *integrate* the new system. "There was no requirement for there to be a tangible result [of the project]," Dolan says, "just that there be a strict process."

Jones, who currently manages EDS's engagement at engineering giant Bechtel Group Inc. in Houston, tells a similar horror story from his past experience: Two years ago, a large engineering/construction company was hired by six nuclear power plants to design a system that would measure radiation levels in employees who work in the plants' "hot" areas. Soon after signing a lump-sum, multimillion-dollar contract, the developer ran into trouble. No detailed scope of work for the project existed—it was all conceptual—and there was no definition of "complete." The nuclear plants and the developer had far different ideas about when and how this project would end. Eventually, all parties ended up back at the bargaining table to resolve these differences, and in the end, no one was happy, Jones says. "The company lost $7 million to $8 million on the project, and the clients didn't get everything they thought they'd get," Jones says. "It was lose-lose."

The other failure factor that goes hand in hand with scope definition is scope creep: midcourse project changes that often lead to cost and time overruns. In traditional construction projects, proposed revisions are subject to a strict review and approval process—they require formal change orders. Not so in IS projects, where unchecked changes often wreak havoc on deadline and budgets. "There is a reluctance to tell customers—especially internal customers—that they can't change their minds without paying more," Jones says. "But I'm a big believer in internal contracts" that spell out a formal change process.

Other common causes of project failure include loss of executive sponsorship and lack of people with appropriate skills dedicated to the project. Blame also can be shouldered by external consultants, who almost ensure project failure, says The Standish Group's Johnson. "They're not paid on the success of a project," Johnson says. "They're paid on hours billed."

Gopal K. Kapur, president of the San Ramon, Calif.-based Center for Project Management (CPM), points a finger at IS management. "CIOs are one of the major reasons for project failure," Kapur says. "Too many are not fluent in project management practices and principles. They couldn't recognize them if their lives depended on it." As a result, Kapur says, IS projects commonly fall victim to what he calls Management's Seven Deadly Sins:

- Mistaking half-baked ideas for viable projects
- Dictating unrealistic project deadlines
- Assigning underskilled project managers to high-complexity projects
- Not ensuring solid business sponsorship
- Failing to break projects into manageable "chunks"
- Failing to institute a robust project process architecture
- Not establishing a comprehensive project portfolio to track progress of ongoing projects

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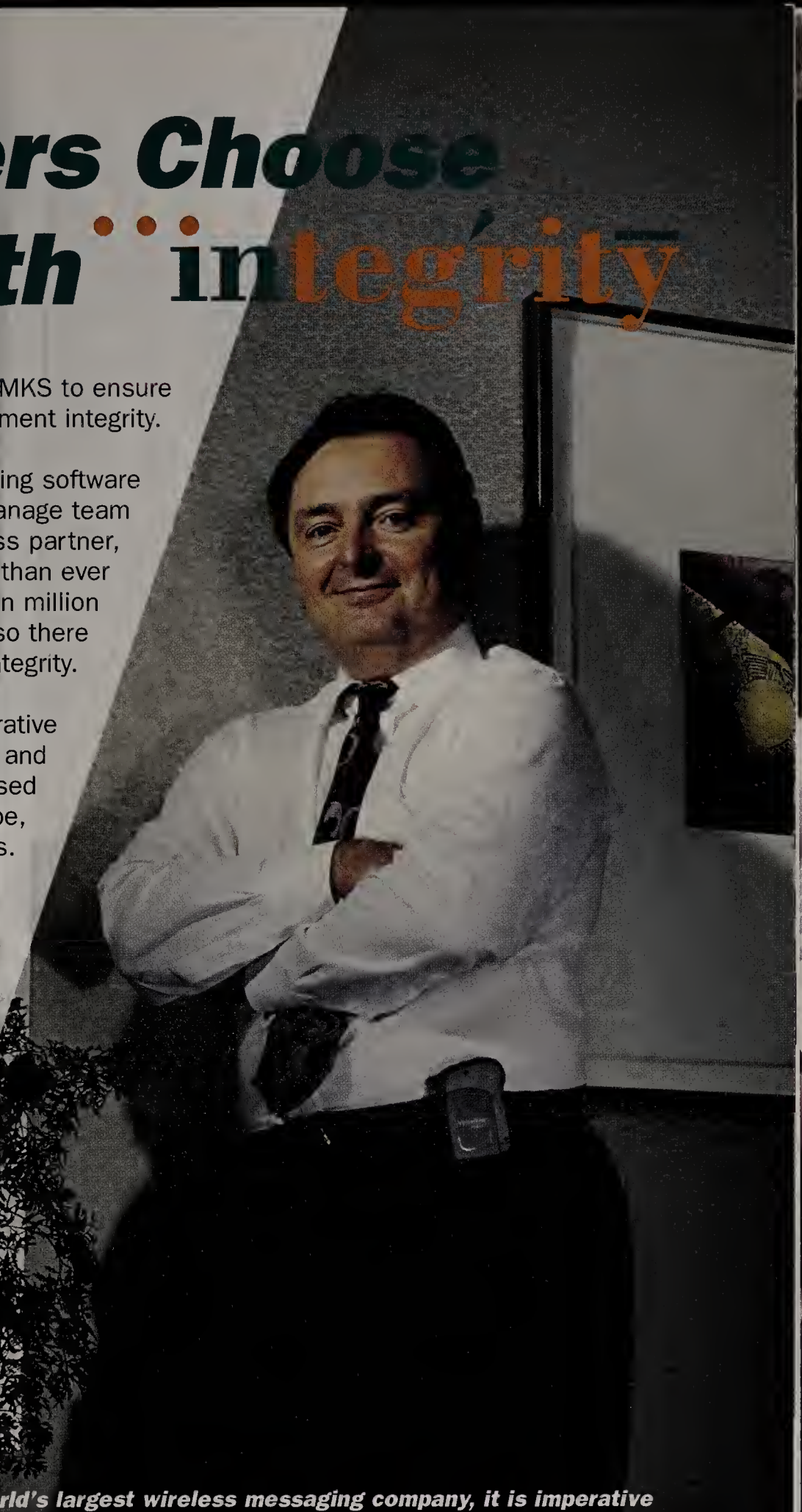

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In general, IS departments are big on best practices and lessons learned but not when it comes to project management, Kapur says. Rather than assess what went wrong with failed projects, IS departments are simply inclined to start new ones. "Projects are abandoned like puppies," he says. "Unfortunately, there is no humane society to treat abandoned projects."

One company that learned from project failure the hard way is Galileo International, a provider of electronic global distribution services for the travel industry. Galileo, which recently went public with a $900 million offering, provides travel agencies at approximately 36,000 offices worldwide with the ability to access schedule and fare information, book reservations and issue tickets for 525 airlines. Galileo also provides subscribers with information and booking capabilities covering 48 car rental companies and over 200 major hotel chains worldwide. In 1995, Galileo's Denver-based operations unit began work on project Agile, which proved to be anything but. Budgeted at $400,000 and scheduled to be completed in just a matter of months, Agile was a software management project designed to help Galileo programmers manage code smoothly between two independent transaction processing systems (TPS), one in Denver and another in London. The goal was to save training time and operating costs by consolidating the systems in a bigger, quicker application based on London's TPS. Senior management's patience wore thin as months ticked by without results. Meanwhile, the project team continued to report, "We're very, very close."

Finally, Joan Hannan, a senior manager in Galileo's GlobalFares Development organization, was brought in last year to rescue what appeared to be a failing project. "Joan was picked primarily because she was a project manager in one of the larger applications areas, and she had good experience in the company," says Jim Lubinski, Galileo's senior vice president of information services and operations. "She also was considered to be one of our toughest people when it came to managing projects."

Hannan's diagnosis confirmed management's fears: Agile had no definition of scope and no clear deliverables, and the developers demonstrated no customer focus. "The technicians were pure technicians," Hannan says. "They had written some really great code, but the customer focus wasn't there. Every time they gave the [prototype] system to the user groups, it wouldn't work."

In an attempt to salvage the project, Hannan went back to the basics. She handpicked a new development team with business, people and technical skills. Then the group started at square one, identifying users, setting system requirements and evaluating what had been built versus what was needed. Finally, after seven months, Hannan's team recommended that Galileo scrap Agile and simply retool the Denver system as a company standard. Given the green light, Hannan's group had the expanded Denver system up and running in six weeks.

On paper, Galileo spent hundreds of thousands of dollars and untallied staff hours on a doomed project, but Agile wasn't a total loss, Hannan says. Galileo eventually did achieve the efficiencies it projected from system consolidation, and it also gained basic project management skills such as scope definition and continuous deadline/budget review. Those skills were previously applied in different ways by different groups throughout the enterprise and are now recognized as essential and applied uniformly with every project. "We spent a lot of time and money we won't ever get back, but ultimately we did make the right decision," Hannan says. "And we learned a great deal."

Often it is possible to turn around a failing project, but one must first recognize the symptoms of impending failure. The most frequently overlooked warning sign is missed deliverables: deadlines, budgets and just plain results. No matter the length of a project, it's imperative to have a series of agreed-upon milestones along the way to track and demonstrate progress. But once your project begins failing to meet those milestones, pay heed. As Hannan says, "I'm not a big believer that if you miss your first five milestones, you're going to meet the next five."

Similarly, says CPM's Kapur, keep an eye on unresolved issues that develop regarding the project. "If the number of issues is equal to or exceeds the number of deliverables, then your project is in trouble," Kapur says.

Miscommunication is another key warning sign. "There is no such thing as too much communication," says Andrew Duncan, Atlanta-based senior manager for Coopers & Lybrand's Solutions Through Technology practice. Key signs of communication trouble are when project team members say one thing about the project to team members and something different to people outside the team and when business users are unable to articulate the project's goals. "Communication gets even worse with international projects, where you have to deal with cultural issues," Duncan says. "You can be in Italy explaining a project to a group of Italian business partners, and they might be sitting there nodding their heads, but you'd better not interpret that to mean they're agreeing with your outline of the project. They might just be saying, 'Yes, we understand what you're saying in English.'"

Warning! Warning!

How to spot impending doom

- Benchmark goals aren't met
- Unresolved issues outnumber deliverables
- Communication breaks down within project team and with customers
- Project costs escalate

Once the warning signs have appeared, project teams must regroup and perform what project management author and guru Edward Yourdon calls "triage," where one reads the project's vital signs—time line, budget, deliverables—and assesses which areas need priority treatment (see "Are You Part of the

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Are You Part of the Death March?

"Mission Impossible" projects don't necessarily mean you're doomed

YOU NEED 12 MONTHS to complete your software development project, but you've only got six. There should be 20 people assigned to a project of this scope; you've got 10. You're hogtied by a fixed-price budget, but realistically you could spend twice that amount—especially since the users keep piling on new requirements.

You've just entered the Death March Zone. But that doesn't mean you're doomed.

Death march is what project management author and guru Edward Yourdon calls "mission impossible" projects, and it's also the title of his new book (Prentice Hall PTR, 1997), which defines the problem project as "one for which an unbiased, objective risk assessment...determines that the likelihood of failure is greater than 50 percent."

Typically, death march projects require from project managers a lot of long hours, hard work and a flair for risk-taking. When they fail, they can fail miserably, but when they succeed, they can pay off big for businesses and project teams alike. "The death march is not really a bad thing," says Yourdon, who also publishes *American Programmer Magazine*. "In fact, a lot of folks say this is one of the most glorious things you can get involved in—like climbing Mount Everest or finding the pot of gold at the end of the rainbow. But everybody knows it's risky going in."

Some organizations—Silicon Valley startups and Big Six accounting firms among them—thrive on this approach to project management, Yourdon points out. The style keeps the groups lean, flexible and open to new business needs and technologies. But to survive in this culture, he adds, one must recognize and embrace the lifestyle. "The CIO needs to decide whether death march is the way he wants to run things," Yourdon says. "Is this something that happens accidentally or deliberately? If the latter, then the CIO needs to train project managers to deal with [the approach] proactively."

Specifically, this strategy must be articulated upfront, and its success requires talented people, cohesive teams, decent working conditions and incentive rewards for project completion.

"Ultimately, this is a personal choice, based on personal values," Yourdon writes in his introduction to the book. "Though I believe that I'm much less naive than I was 30 years ago, I'm still attracted by entrepreneurial opportunities. Show me a sufficiently exciting risk/reward formula, and I'll sign up for yet another death march."

–T. Field

Death March?" this page). After this diagnosis, create an action plan that includes a detailed to-do list and an updated time line. "Then if you see the time line slipping again," Duncan says, "the project may not be as successful as you thought."

3 PROCEED WITH CAUTION

Frank P. Saladis, project manager with AT&T Corp.'s Information Technology Services group in New York, recently oversaw a successful project turnaround. The project: to divide and share the voice and data network equipment when Lucent Technologies Inc. split from AT&T in 1996. The problem: the sheer size of the project's 30-member core team. "Before we could do anything, we needed 29 people to agree," Saladis says. Consequently, team members spent so much time communicating among themselves that the workers in the field—the ones actually splitting the networks and equipment—felt ignored. "We were telling people what their plans were without ever asking them for their input," Saladis says. "There was a lot of demoralization—'You're telling me what to do but not giving me what I need to know.'"

Although "failed project" doesn't look good on anyone's résumé, it isn't necessarily a career-killer.

To solve the problem, Saladis went directly to the project personnel, painted the big picture for them and opened the lines for constant communication. Then he dissolved the 30-member core team and replaced it with a smaller, more manageable group. "We cut out all the layers [inhibiting communication], and we managed to turn things around," Saladis says. The project was subsequently completed without a significant hitch.

Pulling the Plug

Sometimes it doesn't matter whether you can read that sign up ahead; project failure is unavoidable. To prepare for these circumstances, Kapur advises project managers to consider this question upfront: "Under what conditions would I be willing to shut down this project?" Typically, the answer is "when projected costs far exceed expected business benefits" or "when critical deadlines continue to be missed." But often project leaders don't consider this issue until failure is already staring them in the face. Then it can be too late to save their project *and* their job.

At AT&T, project managers use a Project Evaluation Review Process (PERP) to monitor ongoing projects and help decide when to pull the plug. "A lot of times a proj-

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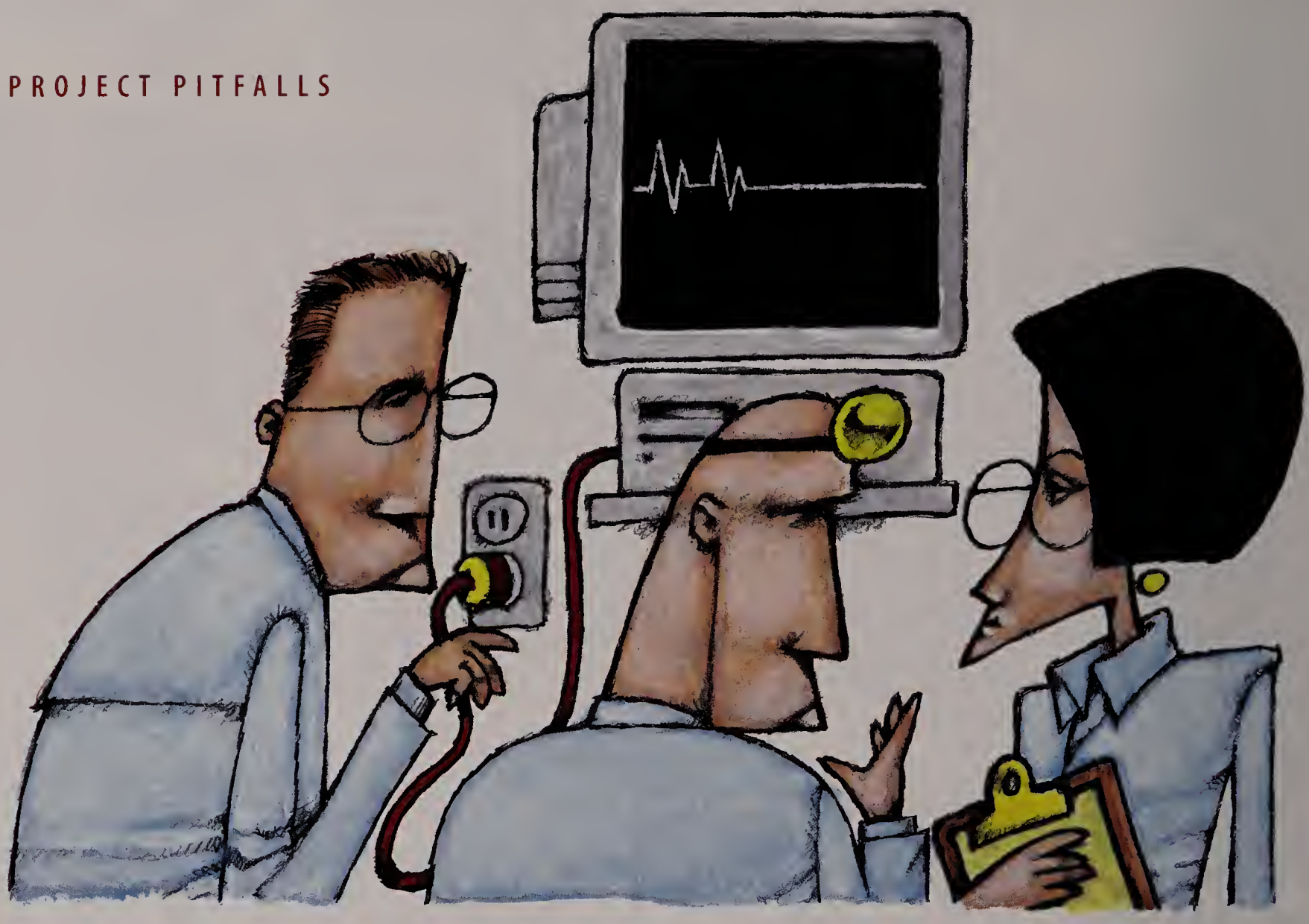

ect moves along well, but then there's a breakthrough in technology, and you have to re-evaluate whether this is the best project to do," Saladis says. With PERP, Saladis explains, the operative question is, "How do the projects benefit the business?" It is applied three ways: creating new value for the customers, the business and the employees. Once subjected to PERP, a project is labeled "go," "on hold" or "eliminated."

Joe Thompson, newly appointed CIO of the federal government's General Services Administration, might be the king of project plug-pullers. Last year alone, his previous office reviewed $25 billion worth of IT projects and ultimately called a halt to 10 major projects worth a total of $7.3 billion. The common theme among these failures, which included some high-profile efforts at the FAA and IRS, was "off-schedule and overbudget," Thompson says. And although he reviews these projects at the highest level—after they've been approved and funded by agency heads, the Office of Management and Budget and Congress itself—Thompson asks very basic questions that often uncover fundamental failings. "Do you have a plan?" he asks. Most of the failed projects did not. "Are the projects linked to the business? Do you have a schedule? Are there metrics in place to review the projects?" he asks. Again, most of the failed projects fell short. In many instances, he says, the host agencies' executive leaders weren't even reviewing project status, and if they were, they were looking more at process than results. "The project management skills in the public sector are about the same as in the private sector," Thompson says. "They're not good."

If at First You Don't Succeed...

Although "failed project" doesn't look good on anyone's résumé, it isn't necessarily a career-killer—especially if one reads the tea leaves and warns senior managers before the failure occurs. "Circumstances occur," says AT&T's Saladis. "If you can't prevent failure, you'd better be telling people about it. Management doesn't want to be blindsided."

In the case of the Oregon DMV, where officials essentially ran from the truth until the project failure was inevitable and messy, jobs were lost—and deservedly so, given that project's end-to-end mismanagement. But at Galileo, where Hannan ultimately failed to salvage project Agile, her boss came away impressed with Hannan's hard work and honest answers when it came time to pull the plug. "I don't have any problem with letting people go down the wrong path," Lubinski says. "Better to make a decision, be wrong and then fix the situation than to make no decision at all and let the world pass you by." CIO

Let's Call the Whole Thing Off

When to call it quits

- When costs exceed business benefits
- When deadlines continue to be missed
- When technology and/or business needs evolve beyond project's scope

Senior Writer Tom Field can be reached at tfield@cio.com.

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Edited by Elaine M. Cummings

Project Managers Toolbox

Here's everything you'll need for keeping track of your project's people, tasks and money

BY CURTIS F. FRANKLIN JR.

DICK KEARNEY IS RUNNING OUT OF TIME. As partner in charge of the global year 2000 practice at KPMG Peat Marwick LLP in Boston, Kearney knows that he and his customers have, at most, two more years to handle a daunting challenge: ensuring that every one of the company's computers will be able to cope with dates in the year 2000 and beyond. Project by project, his teams must look at a diverse range of systems, including office desktops, glasshouse mainframes and factory floors. "[Year 2000 projects] tend to be the biggest single project management problems our customers have ever had," Kearney says. "What's complex is the vastness of the problem. The actual coding work is probably the easiest part of the whole thing," he adds.

Keeping track of the scores of people and myriad tasks involved in a project this big requires both experience and a variety of tools. Project modeling and management software from companies such as Microsoft Corp. and Primavera Systems Inc. helps Kearney track tasks and schedules, and a proprietary package facilitates communication among team members. Just as a carpenter uses various saws for different types of cutting, Kearney uses multiple tools to handle the many aspects of project management.

Knowing which tools to use, out of a dizzying array of possibilities, is part of the project management experience Kearney brings to the process. He points out, as good as tools are, every project still requires a seasoned and knowledgeable project manager. "If all you had to do to be a good project manager was to file reports—never understand the issues, never manage people—then having tools like these would make everyone a great project manager," Kearney explains.

Ernie Schoenfeld, senior consultant at Deloitte & Touche Consulting Group's Solutions Center of the Americas in Minneapolis, agrees. "I don't think we're at the point where somebody could come in with no project management knowledge and use the tools, but the tools give people a head start," he says.

IN THIS SECTION

Intellectual Property Protection

Visual Modeling Tool

Encryption

Three Approaches to Managing Projects

Project managers can get a head start from any of three categories of software. The first, most basic, is scheduling software such as Gantt and PERT charts, which help managers create schedules and determine how to allocate time and resources.

A second type is the collaboration tool that facilitates communication between team members. Collaboration tools evolved from groupware, in which central stores of information and ready electronic access to those stores

ILLUSTRATION BY JAMES O'BRIEN

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Private Property

The Internet is raising distribution dilemmas for vendors of intellectual capital

INTELLECTUAL PROPERTY

BECAUSE THE INTERNET DEPENDS on the concept of the free flow of information, vendors of intellectual property have resisted putting their most valuable data online for anyone to access at will. In theory, vendors distributing intellectual property over the Internet can choose from any of several different degrees of control. Material used as advertising for a company or product line might be distributed freely, to the point of encouraging copying. In other cases, vendors might prefer to impose very tight restrictions in distribution, perhaps using some form of copy protection. Still other situations might fall somewhere in between: An entertainment company, for example, might want to encourage family-oriented Web sites to use its graphics or animation but not want the same content to show up on adult entertainment sites.

It would be convenient if a company could assign different degrees of distribution control to different products quickly and flexibly. Until recently, that has been difficult. However, Newton, Mass.-based Parable Inc. has included this feature as part of a new multimedia authoring program called ThingMaker. Multimedia authoring tools help Web site builders insert various multimedia objects and allow Web producers to insert different kinds of objects—sound files, graphics and text—into files. Parable calls these objects "things." ThingMaker can support a rigid or open distribution plan, leaving the producer in control of the accessibility of information.

Creators can also force downloaded objects to be stored in encrypted form, making it difficult (although not impossible) for users to channel them into other pages or modify them without permission.

That capability may lead to a wide range of online object business models, including pay-per-object, subscription access and objects acting as mobile ads that wander freely on the Internet. For instance, Boston-based multimedia company Planet Interactive Inc. is planning to use Parable's tools to embed ads for itself in a series of objects. Using Parable's "mouse over text"—objects are highlighted as a mouse

passes over them—Planet Interactive plans to call attention to objects on its site. The notion is that when the objects are downloaded by Web site authors, the authors may be impressed enough by the object to take a look at the names of its creators. What's more, these "things" might circulate through the Internet forever, perhaps even outliving the companies they were promoting and gradually inspiring a historical, nostalgic interest, such as baseball cards have.

–Fred Hapgood

facilitate teams that span continents, oceans and time zones.

Finally, there are the tools that take a larger view, typically that of upper management, by focusing on a project's risk and success factors. For those charged with deciding the fate of project proposals or determining, in the broadest terms, whether projects have a reasonable chance for success, these tools can provide vital ways of understanding and using the information generated by the other tool types. In fact, these three basic types of tools (and others) are often used together, each dedicated to the kind of task it handles best.

The first thing most people think of when they think of project management is scheduling. It's the project manager's job to meet schedules and budgets by making sure people and resources are where they need to be, when they need to be. So it's not surprising that scheduling software saw a 42 percent compounded annual growth rate between 1990 and 1995, according to Jennifer Cioffi, group product manager for Microsoft Project at Microsoft Corp. in Redmond, Wash. The bulk of the growth came from individuals and companies interested in personal project management, in which one person is charged with managing forecasts, communication and other facets of the project. "Eighty percent of our users say that they're the only person to edit a project plan," says Cioffi.

But today the emphasis has switched from personal project management to organizationwide planning. Facilitating coordination among project managers, managing goals across departments and sharing resources across projects are all important new priorities for managers. In the 1980s, the push for efficiency led to a purge of many support people. Now, a push for growth has led to managers' demanding a tool that not only models project schedules but also performs crucial support functions.

Collaboration has become more important as project management has

ILLUSTRATION BY BARTON STABLER / SIS

moved away from the realm of the specialist into the everyday domain of managers. "Projects are moving out of the corners of the organization, and people are finding that the softer elements, the management issues, need help getting resolved," says Richard Rebh, vice president of marketing for WebFlow Corp., the Santa Clara, Calif., publisher of WebProject and other project management tools based on a Web browser interface. It is precisely those "softer elements" of communication, coordination, consensus building and group decision making that lend themselves to solutions grounded in groupware. Software solutions companies are using packages such as WebProject and Lotus Development Corp.'s Lotus Notes to manage project teams. When it was released in the early 1990s, Lotus Notes defined the term "groupware." Once in place, Notes tends to become a platform for developing diverse applications. Deloitte & Touche Consulting, for example, has built Electronic Project Notebook, a proprietary project management system, on a Notes platform. "We get involved in a lot of complex projects with multiple locations and disciplines, especially as we deal with more global customers," says Schoenfeld. He explains that the system promotes a "virtual enterprise" concept, enabling all team members to work together on individual projects, regardless of their locations or schedules. Its ability to bring teams together is a large part of why companies turn to Notes, according to Judith Tracy, senior manager for manufacturing solutions at Lotus in Cambridge, Mass. "Notes takes the disciplines from within and without the company and gives the team a place to go to seek the information they need and then contribute to the project," she says. And not only the project team benefits: "Management finds Notes a good tool for looking at status and information without having to round up all the people involved on a project," says Tracy.

"As projects move out of the corners of the organization, softer elements need resolution."
–Richard Rebh

Go with the Flow

The goal of bringing teams together without resorting to face-to-face meetings isn't reserved solely to those organizations using Notes. Fred K. Wade says he began looking for a collaboration tool shortly after becoming vice president and CTO

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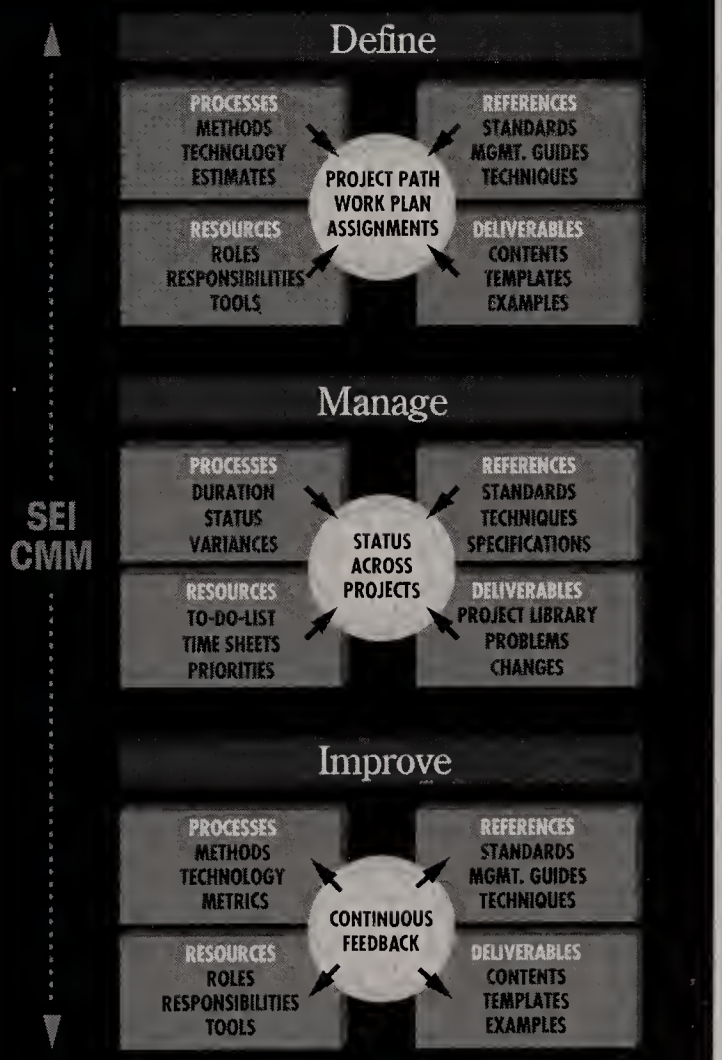

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of TNT Logistics USA in Linthicum, Md. "When I came on board, teams were being sent around the company to talk about documents—project plans, requirement studies, systems projects," he says. But "collaboration by travel" inflated project costs and lengthened schedules. Wade wanted a tool based on a Web-browser interface that could replace airline tickets as a primary collaboration mechanism; his greatest concern wasn't *meeting* schedules but *creating* schedules—pulling together all the considerations needed to determine resource and task commitments. Wade chose WebFlow tools because they can convert documents from many different sources into HTML documents that can then be edited, revised and reviewed through any of several common Web browsers. Each change is saved in a history file, making it easy to review comments and changes and see why the final product looks the way it does.

"Once tools go on the Net, everyone can participate in project management."
–Jerry Michalski

What You Don't Know

Scheduling and communication are important requirements for project management, but other factors are equally crucial, according to Bob Cawly, president and CEO of Sentry Technology Group Inc. in Westborough, Mass. For example, understanding a project's risks helps managers determine whether they should proceed and if they have allocated sufficient resources to it. Cawly points to software from The NorthPoint Group of Framingham, Mass., as an example of a package that helps managers view projects from this perspective. "[NorthPoint] is able to identify the risks and show how to manage and control them," says Cawly. "They put a framework together that lets people have a common frame of reference and then get back to a common measurement. Other software doesn't help you look at the risks. Others are task-and schedule-oriented, but they don't help you understand the risks or manage them," he adds.

Using NorthPoint software, managers enter information on a variety of topics, then plot critical success and risk factors. The resulting output shows risk as curves through the life cycle of a project, rising and falling according to the risk factor and the project phase. That approach makes most managers look at different factors from what they traditionally

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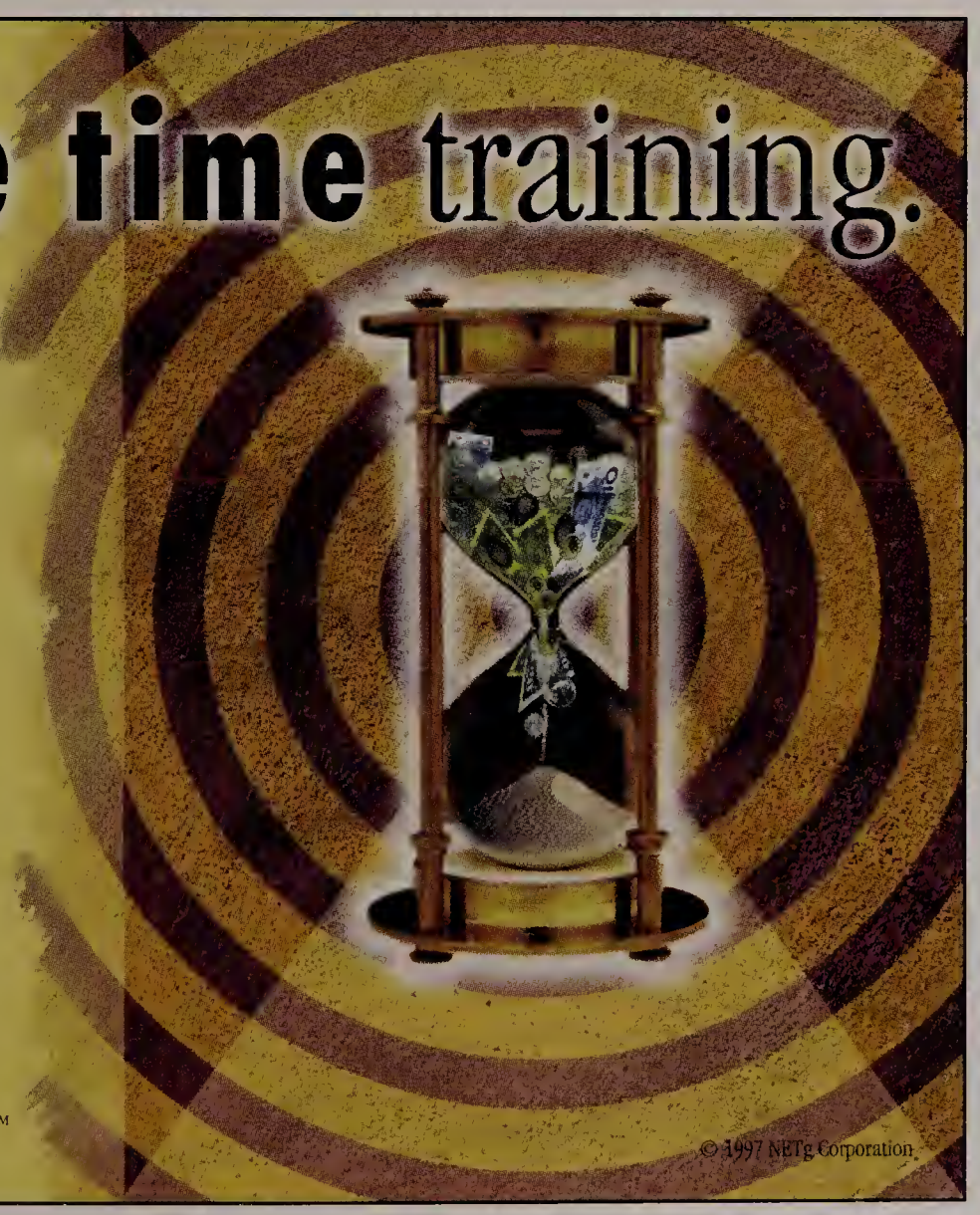

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Emerging Technology

deal with, says David Chapman, NorthPoint's president and CEO. "Most of the success activity requirements aren't even in the project plan," he says. "Of the last few projects we've done, more than 60 percent of the factors required to make the project successful weren't in the project plan or the work breakdown structure." By targeting the knowledge, experience and performance of team members and ensuring that the proper resources are deployed, NorthPoint software helps make the traditional approach to project management more effective.

Project management tools have continued to add functions and win acceptance, and some observers say the most important development is now upon us. "The 'Webification' of software is the monster trend in the computer industry," says Jerry Michalski, managing editor of "Release 1.0," a newsletter on computer industry technology trends. Two features of Web-enabled software—a common user interface and the ability to link many kinds of data in a single coherent document—suggest new uses for the project management framework, says Michalski. By linking data, companies can create easily accessed repositories of all the documents associated with a project. Michalski says the common user interface will have even deeper consequences. "Historically, project management tools have been for the project managers," he says, "but once the tools are on the Net, the process becomes participatory project management for everyone."

Regardless of whether project management tools are reserved for an elite group or pushed across an intranet to all the members of an organization, no tool can replace skilled managers. According to Sentry Research and Analyst Services, at least one-third of IT projects initiated never make it to either the pilot or production phases, and only one in 10 meets its schedule and budget targets. KPMG's Kearney believes the reasons go beyond those that technology can address. "There's so much more to project management than chasing numbers that I can't say that someone with [a project management] tool will definitely be better than someone with a pencil and piece of paper," he says. But all project management tools, regardless of their approach to the problem, enhance the abilities of a manager. Kearney notes, "Projects seemed to get done before there were computers, but these tools help us get to improvements—better, faster, cheaper—the way we need to in order to succeed." CIO

Curtis F. Franklin Jr. is a freelance writer and director of Client/Server Labs in Atlanta. He can be reached at cfranklin@cslinc.com.

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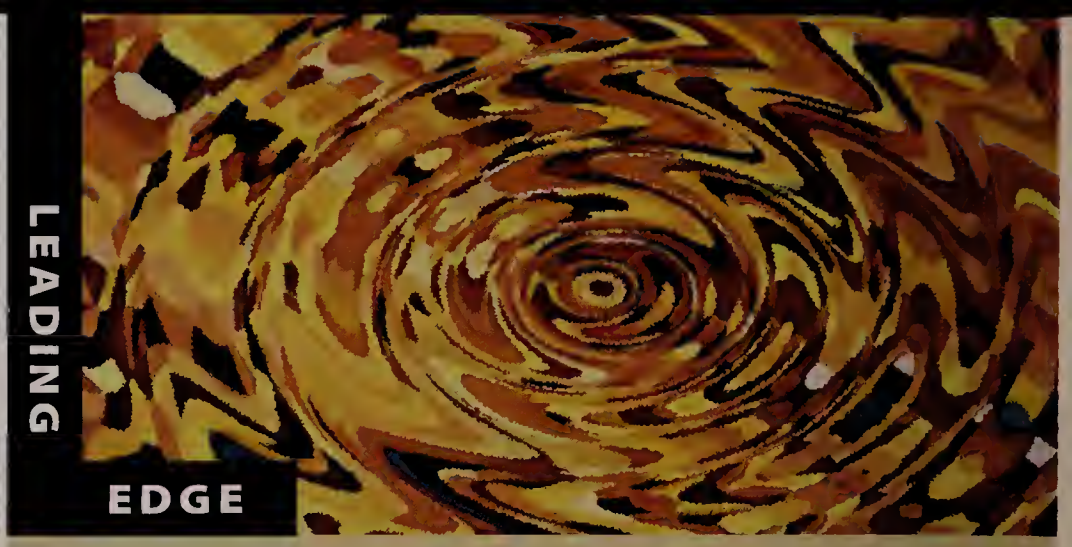
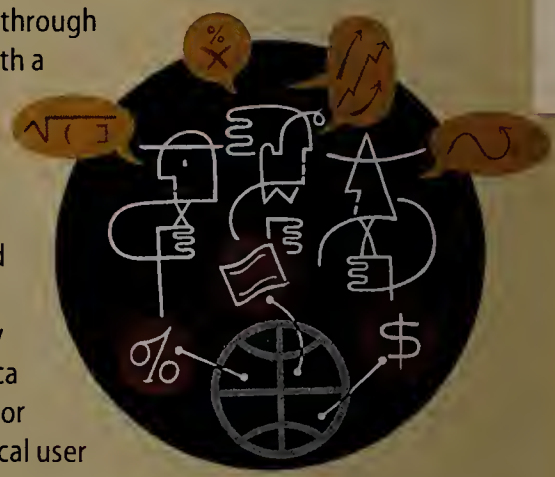


Model Behavior

IN TODAY'S INCREASINGLY COMPLEX BUSINESS WORLD, endless reams of information can make decision making even more difficult. With cross-functional teams within organizations and co-opetition among them, rows and columns of data just don't cut it. Fortunately, **Decisioneering Inc.** had a better idea. The Denver software company has introduced a general-purpose visual modeling tool. Analytica is a multidimensional modeling program targeted at people who spend a good chunk of their time conducting quantitative analysis. Relying on object-oriented technology, Analytica illustrates the relationships among variables through bubbles and links. For example, with a click of the mouse, users can get a visual representation of the impact of sales and commissions on profit margins. Complex information can be easily arranged in hierarchical models. And unlike spreadsheet programs that display data in rows and columns, Analytica displays data in graphs, bar charts or tables. Analytica relies on a graphical user interface and a limited number of standardized symbols, features that Decisioneering says make the program easy for senior executives to learn and use. The program includes risk and sensitivity analysis features, which are helpful when users are creating models with uncertain factors. It also features more than 100 financial, scientific and mathematical functions.



Analytica sells for $795 and is available for both PC and Macintosh platforms. For more information, call Decisioneering at 800 289-2550 or visit *www.decisioneering.com*.

Cryptic Messages

JUST UTTERING THE PHRASE "encrypting the files" is hard enough—never mind knowing how to carry it out. But new technology from **Entrust Technologies Inc.** in Richardson, Texas, makes securing valuable documents easy and automatic. Entrust/ICE (Integrated Cryptographic Engine) software lets desktop and laptop users automatically and transparently encrypt files. With Entrust/ICE, users can have files automatically encrypted when they are saved in specified folders or when the system starts up. The product also extends the menus in the Windows 95 and NT Explorer interfaces to integrate file encryption and decryption in the operating system. Because Entrust/ICE uses RSA public-key cryptography, users can encrypt files for specific recipients. "Users of this new product will be impressed with its speed, transparency and flexibility," says John Ryan, CEO of Entrust Technologies. "The application works so quickly that users don't even know it's there. And there is no need to remember another password because one password works across all Entrust-aware applications." For more information, visit *www.entrust.com* or call 919 992-5525.

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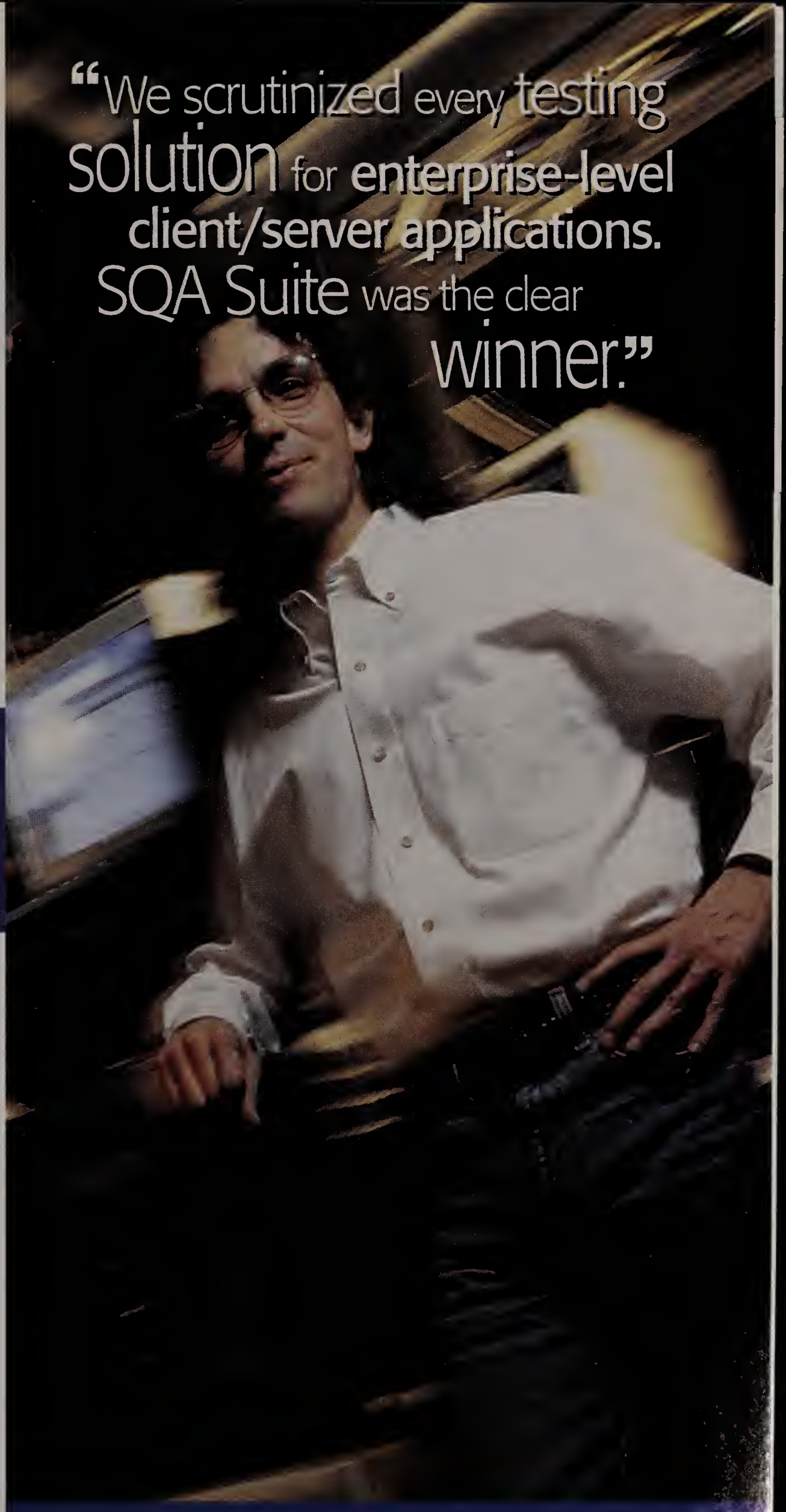

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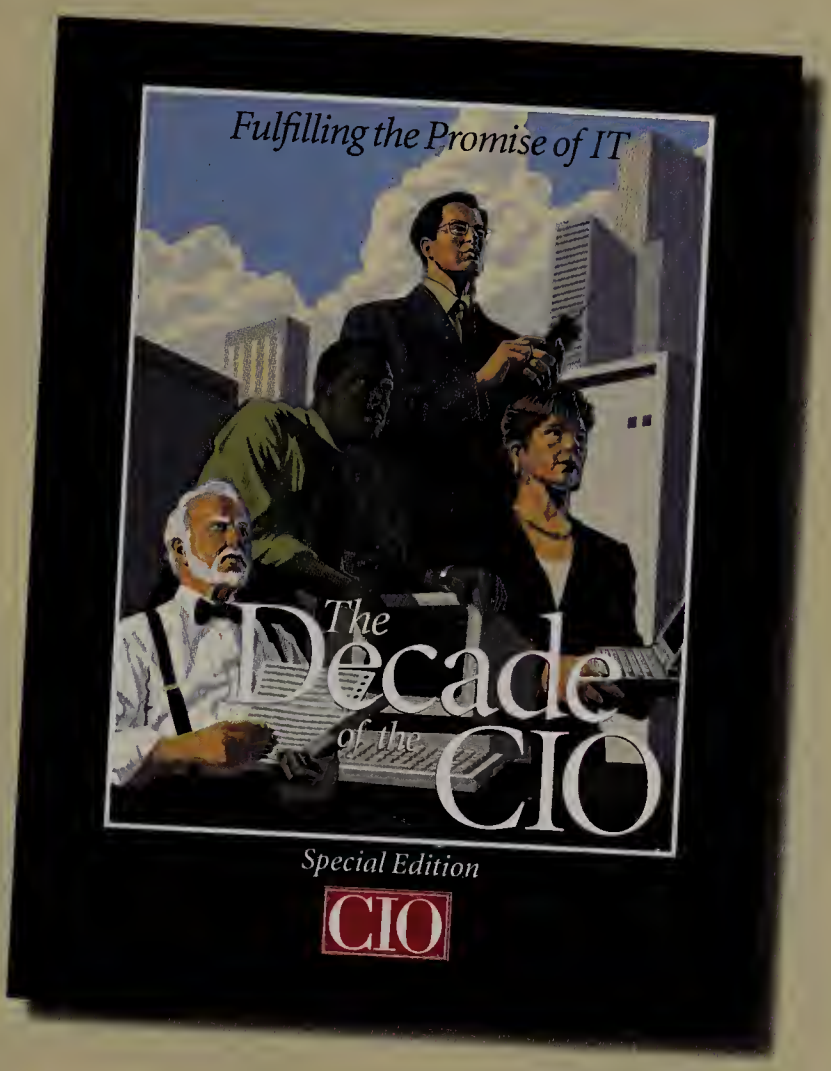

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ShopTalk

Edited by Elaine M. Cummings

BankBoston's David Iacino on Year 2000 Project Management

Spotlight On:

David Iacino, *Project Manager, BankBoston, Boston*

- **Line of Business** Banking
- **Bio** Project manager at BankBoston for the past eight years; in charge of the architecture for the common software project; managed the cash-management systems group and a corporate lending group
- **Day to Day** Making sure to continually improve the process while looking ahead six or eight months to where IS should next focus
- **Challenges** To keep IS moving and to effectively communicate the Y2K problem to the rest of the enterprise

CIO: When did your Y2K project start?
In 1995, BankBoston put together a plan for a centralized group that could interface with all of the application owners within the bank.

What makes a Y2K project more difficult or challenging than others?
First and foremost, you must complete the project on time. There's no option there. This project is pervasive; it is not limited to the application undergoing remediation but includes other applications within the company and in the outside world. Roughly 50 percent of these applications are vendor-supplied—we're dealing with 80 vendors—so we also had to put in place a very strong vendor-management program.

Are vendors concerned with your compliance?
Absolutely, which is yet another reason this project is unique. As our customers look to us for assurance that the services we provide them will remain intact across the century, we look to our vendors to support our Y2K needs. We're a customer and a supplier at the same time.

How did you set priorities for this project?
We have a pretty good handle on our inventory of applications, but we needed to rank that inventory in order to work on our most critical applications first. Those applications most visible to our customers and most central to our business are the ones we have ensured to be Y2K compliant in time. We can work on less essential applications through 1999 and even into 2000 if we need to.

A sort of "triage" approach?
Yes, which was something we had already modeled in our disaster recovery plan. We decided that those applications critical to a disaster recovery scenario are probably critical from a Y2K perspective, too.

Does the project require more staff?
The demand in the labor market for skilled IT people to remediate code is significant. At BankBoston, we'll need to add roughly 40 to 50 full-time staff members in IS to get the project done.

Will it be difficult to retain your IT staff as the turn of the century nears?
Fortunately, we have a two-year head start on this project; we've gotten the process in place, and we have a good staff today who knows how to operate in our process. Our biggest challenge will be to figure out how to retain those people so that we have not invested all that time and money in training them only to have them poached or raided by someone else who is just starting up a Y2K project.

How does the process work?
We bring our inventory, application by application, through the remediation process and return it to the application owner in a Y2K-compliant state. We go through the analysis phase, update phase, acceptance-testing phase and implementation phase, acting more as project managers over the entire process rather than doing all of the code-changing ourselves. Then it's up to the business partner to pass it through acceptance testing after it's been made Y2K compliant.

What percentage of the project involves actually fixing the code?
The analysis phase accounts for about 20 percent of the effort; the actual code fixing represents another 20 percent; and the testing another 50 to 60 percent. We're responsible for the certification of each application, soup to nuts. The process we have defined and refined over the last two years really gives us the well-oiled machine we have today.

–Alex Frankel

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CIO

CIO BUSINESS PERSPECTIVES CONFERENCE

NET BUSINESS: COLLABORATION, CO-OPETITION & PROFIT

DECEMBER 7-10, 1997
CENTURY PLAZA HOTEL & TOWER
LOS ANGELES, CALIFORNIA

Nowhere in our institutional memory do we have the experience base to deal with the challenges the 'Nets provide... **alternate** distribution and marketing channels, **enterprisewide** collaboration, modern business practices, **partnerships** with competitors and **new** profit metrics.

Although they have acquired the **experience** to guide business practices, **managers** may sometimes lack the ability to adapt to the **dynamic** technologies that their younger **Web-savvy** counterparts possess. How will executives embrace these **new technologies** and the early majority articulate the **benefits** of this new business medium?

Net Business: Collaboration, Co-opetition & Profit, to be held December 7-10 at the Century Plaza Hotel & Tower in Los Angeles, will address these issues. Moderated by **Tom Davenport** and featuring CIO's vice president of technology, **Tim Horgan**, we will explore both the required multi-disciplinary partnerships and affiliations necessary for improving 'Net **business** results and **business mastery**.

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